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OF THE

Board of Agriculture, Agricultural Associations,

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AND DOMESTIC ECONOMY.

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WILLIAM McDOUGALL, Editor and Proprietor.

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THE

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VOLUME IX.—INTRODUCTORY.

Most of our subscribers are aware that we long since adopted the rule to begin our subscriptions anew every year. We do not, like most other journals, continue our paper to those who have once subscribed for it until they send an express order to stop. Such a system would soon ruin a paper like the *Agriculturist*, the subscription to which is only 2s. 6d. per annum. The cash must be paid from year to year, and without any expense for collection. The expense of keeping books, and making out and sending bills, would swallow up all the profits of the publication, if its circulation were double what it is. Beginning the year, therefore, without any subscribers (except a few who had paid in advance for 1857), our friends will see that we incur much risk, and almost necessarily some loss, from our not knowing how large an edition to print. True, there has been a gradual increase for the last three or four years, and we have, therefore, some index as to the future. Still, we must run the risk of fluctuations, which may arise from various causes. The attempt of a Yankee speculator, to palm off a reprint of the *Genesee Farmer* as a Canadian work, injured us seriously two years ago; not merely by taking away subscribers from the *Agriculturist*, but by exciting, through his swindling operations, ill-will and prejudice against agricultural papers generally.

As we cannot afford to employ travelling agents, we must trust mainly to the good-will of the agricultural community to support our publication; and, for the reasons above stated, we are obliged to appeal to our friends for their sympathy and favour, at the commencement of every volume. If our only object had been *gain*, we should have given up the publication long ago, and devoted the time, labour, and capital it has consumed, to other and more profitable enterprizes. Nor would we have reduced the subscription price from a dollar to *half-a-dollar* for single subscribers. But, amidst other avocations more or less important and absorbing, we have turned, monthly, to the *Agriculturist*, as to an old and genial friend, with whom we could enjoy a few hours of placid, agreeable, and instructive recreation, unvexed by the schemings of heartless politicians, or the crabbed suggestions of professional disputants. The *Agriculturist* has been from the first "a labour of

love," and we are unwilling to relinquish it, so long as we are conscious that its mission is a good one, and its influence palpable and healthful. If we have one unselfish feeling stronger than another, it is to see our country improve; to see it become "great" in every sense;—great in the freedom of its institutions—in the purity of its morals—in the intelligence of its youth—in the superiority of its husbandry—and, as a consequence, great in its material wealth, and the envy of all for the prosperity, contentment, and general happiness of its people.

With these aspirations we begin another year's labours. We ask the renewed and more energetic assistance of *old* friends, and the hearty co-operation of as many *new* ones as may feel disposed to come up to our help. On the last page we have stated the terms on which we should be glad to receive the assistance of those who may have a few weeks at their disposal during the winter. The prize system was adopted last winter, with considerable success. We have made the prizes larger and more favourable this year. Let no one be discouraged by the notion that others will beat him. The number of persevering competitors will not, probably, be large; and we have made such provision for those who may fail to win a money prize, that they can hardly lose by their efforts to extend the circulation of the *Agriculturist*. Intending competitors should go to work at once. Copies of the present number, which is a fair specimen of those to succeed it, will be sent to any person requesting them.

We hope Agricultural Societies that have hitherto patronized us, will continue their favour; and that others will, this year, try the experiment of supplying their members with a copy of the *Agriculturist*, or some equally useful agricultural journal.

ANATOMY AND DISEASES OF THE HOG.

The hog is still an essential part of the farmer's stock, in most parts of Canada. We intend to give a somewhat detailed history of the animal, and of the several most noted breeds, in future numbers of the *Agriculturist*, collected from the best authorities. We give below a brief account of his *anatomy*, from that standard work, "Youatt and Martin on the Hog." It will be interesting to young farmers.

A very slight acquaintance with that complicated and beautiful structure which we term the animal economy, will be sufficient to convince us that any rational method of investigating or treating disease, must be founded upon an acquaintance with the general construction of the frame, the derangements and alterations to which it is liable, and a concise notion of the various systems or sets of organs of which the body is composed. Without this amount of knowledge it will be impossible correctly to interpret those signs of alteration of structure or function which constitute the symptoms of disease, and indicate its nature and seat.

If we would understand how to regulate the working of some complicated machine, we must not content ourselves with a mere cursory glance at its exterior, but closely inspect the different parts; make ourselves acquainted with their shape, situation, and arrangement; inquire into the principles upon which the whole is constructed, its mode of action, and the offices which each part is destined to perform. Proceeding thus, we shall arrive at a knowledge of the best means of preserving it from injury, repairing any accident that may happen to it, and maintaining it in a fit state for the efficient discharge of the duties it was intended to perform.

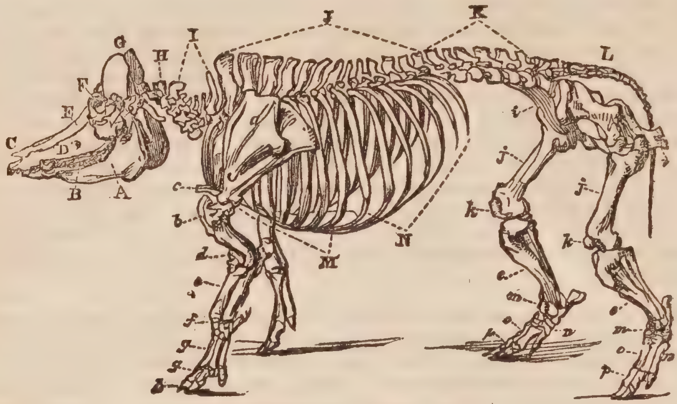
The animal economy consists of parts or organs, differing from each other in structure and function, yet all so intimately connected together, and so mutually dependent upon

each other, that the co-operation of the whole is necessary to a state of perfect health; and if any one part suffers injury, the neighbouring organs sympathise with it to to a greater or less extent, and the working of the whole system is impaired. In order to arrive at a proper understanding of the functions of any one part of the body, we must study the whole; there is no other way of obtaining that insight into disease which will furnish us with a clear idea of the precise nature and seat of a malady, and the course of treatment most likely to be attended with success. The uninformed empyric, who deals about his nostrums at random, is far more liable to put an end to the life of his patient than to arrest the progress of the disorder. Such men should never be allowed to tamper with the meanest animal. It is only to those who, from close study and long practice, have acquired an accurate knowledge of the anatomy, disease, habits, and general management of domesticated animals, that their medical treatment can with safety be intrusted.

It is, however, by no means our intention in this work to give a formal treatise on the anatomy, physiology, and diseases of the pig; but simply to lay before our readers a tolerably comprehensive sketch of the general structure of the animal, and the alterations and evils to which certain parts are liable, and this divested as much as possible of all the technicalities of professional language. A description of the different parts, their form, situation, action, and functions, as well as their admirable adaptation to the ends for which they were designed, will lead us to a consideration of the diseases incidental to them—to the treatment proper to be adopted—and to some account of the various operations which it may occasionally be requisite to perform. In short, we would present them with a practical digest of all that is yet known relative to this too much neglected branch of veterinary science; one that shall serve as a book of reference in cases of doubt or emergency, and aid in introducing those great truths and leading doctrines, which form the groundwork upon which the practice of every branch of medical science ought to be based, into the last strongholds of ignorance and empiricism.

In entering upon the anatomy and diseases of swine, we may be said to take possession of a new and almost untrodden field, one as yet scarcely recognised as belonging to any earlier occupants; and here, in the onset, it will be as well to observe that, careful and lucid as we shall endeavour to make our descriptions, we should only mislead the agriculturist or grazier if we were to encourage him to believe that they will enable him wholly to dispense with a veterinary surgeon. Far from it; we would rather persuade him to seek at once the assistance of the well-educated and scientific practitioner, who, from close study, practical experience, and surgical skill, is qualified successfully to grapple with the most obscure and fatal diseases. We would enable him to assist the veterinery surgeon in his often arduous task, by giving him that information as to the previous symptoms, habits, &c., of the patient, which can alone enable him to proceed with certainty, and will tend to save the life of many a valuable animal; and, lastly, we would warn him against empyrics.

Swine, from having been, until very lately, considered as a subordinate species of stock, have not yet, to any extent, become sharers in the benefits which an improved system of agriculture, and the present advancing state of veterinary science, has conferred upon other domesticated animals. When anything goes wrong in the piggery, the farmer too often, instead of exercising that shrewd sense which he turns to so good an account in almost every other instance, either sends for the butcher, or consigns the sick tenants of the sty to the care of an ignorant "pig doctor," whose whole pretensions to leech-craft rest on the possession of some antiquated recipe, which he uses indiscriminately as a grand panacea for "all the ills swine's flesh is heir to," or on the traditionary lore he inherits from some ancestor famous in his day for certain real or supposed wondrous cures. The treatment adopted in such a case is usually of a very summary nature: a drench is administered, the principal ingredients of which consist in whatever abominations happen to come to hand first when this learned practitioner is summoned. The unlucky patient's tail is next cut off, or he is bled "between the claws," and the "doctor," after some learned clinical remark to the bystanders, swallows the customary mug of beer, and leaves his patient to contend with his disease and the remedy, one or other of which, in most cases, speedily brings the matter to a conclusion, unless, with all the obstinacy inherent in a pig's nature, he lives on in spite of both.



SKELETON OF THE PIG.

THE HEAD.

A. Maxilla inferior, vel posterior—lower jaw.
B. Dentes—the teeth.
C. Ossa nasi—the nasal bones.
D. Maxilla superior, vel anterior—upper jaw.
E. Os frontis—the frontal bone.
F. Orbiculus—the orbit or socket of the eye.
G. Os occipitis—the occipital bone.

THE TRUNK.

H. Atlas—the first vertebræ of the neck.
I. Vertebræ colli, vel cervicales—the vertebræ of the neck.
J. Vertebræ dorsi, vel dorsales—the vertebræ of the back.
K. Vertebræ lumborum, vel lumbales—the vertebræ of the loins.
L. Ossa coccygis—the bones of the tail.

FORE EXTREMITY.

a. Scapula—the shoulder blade.
b. Humerus—the round shoulder bone.
c. Sternum—the breast bone.
d. Ulna—the elbow.
e. Radius—the bone of the fore-arm.
f. Os navicnlare—the navicular bone.
g.g. Phalanges, vel ossa pedis—the first and second bones of the foot.
h. Phalanges, vel ossa pedis—the bones of the hoof.

HIND EXTREMITY.

i. i. Pelvis (ossa innominata) the haunch bones.
j. j. Os femoris—the thigh bone.
k. k. Patella—the stifle bone.
l. l. Tibia—the upper bone of the leg.
m.m. Tarsus (one of which is the (N) os calcis)—the hock bones.
n. n. Os naviculare—the navicular bone.
o. o. Digiti, vel phalanges (ossa pedis)—the first digits of the foot.
p. p. Digiti, vel phalanges (ossa pedis)—the second digits of the foot.

THE SKULL AND SNOUT.

As the skull of the hog differs in many respects from that of the horse, sheep, or dog, we shall now proceed to notice those points of difference.

From the point of the occiput to the tip of the nasal bone, the profile presents an almost unbroken sloping line. The position of the orbit of the eye is lateral, giving to the animal a side, rather than a forward range of vision. The space occupied by the orbital processes of the frontal bone in the ox and horse, is in the hog supplied by a cartilage. The frontal bones unite together early, and the parietals appear to form but one piece. The frontal sinuses proceed to the occiput, and are only separated from each other by some longitudinal or somewhat oblique bony layers, which do not entirely intercept communication: these and the sphenoidal sinuses render the cerebral cavity narrow; in fact the size of it is only half that of the cranium viewed from the exterior. The ethmoid and turbinated bones are larger and more fully developed in the hog than in the ox or sheep; in fact they occupy an intermediate grade between those of the horse and dog, being larger than those of the former, and smaller than those of the latter; they are spiral, complicated, cellular, and offer an extensive surface for the expansion of the olfactory nerve; the ethmoidal fosset is very much sunk, of moderate size, divided by a very salient crest, and riddled with numerous holes.

The nasal bones of the hog are situated low down in the face, flattened, and well adapted to the situation and wants of the animal. They are attached to the frontals in a slightly curved direction across the face, by a strong denticulated suture. All com-

munication between them and the lachrymal bones is cut off by the interposition of a projection of the frontals on either side; the suture between them and the superior maxillary is mortised; the anterior maxillary sends up a broad deep process more than half the length of the nasal bones, and the suture here is exceedingly strong. The bony nasal opening is but small, not one-sixth of the size of that of the sheep, and the apices of the bone form one sharp but rapidly widening point, which is carried forward to the anterior extremity of the maxillary. The suture between the nasals themselves is often so intricate, that before the animal is two years old, the upper part of it is perfectly obliterated, and the nasal cavity appears as if only covered by one bone. A very slight comparison of the face of this animal with that of any other, will prove that strength is the object here in view—strength towards the inferior part of the bone. In point of fact, the snout of the hog is his spade, with which, in his natural state, he digs and grubs in the ground for roots, earth-nuts, worms, &c. And to render his implement more perfect, an extra bone is added to the nasal bone. This one is short and trificial, and placed directly before the nasal bones, with which, and with the edges of the anterior maxillary, it is connected by strong ligaments, cartilages, and muscles. This bone has been termed the *spade-bone*, snout-bone, and, by some writers, the *vomer*, from its supposed resemblance to a ploughshare. By it and its cartilagious attachment is the snout rendered strong as well as flexible, and far more efficient than it could otherwise be; and the hog often contrives to give both farmers and gardeners very unpleasant proofs of its efficiency, by ploughing up deep furrows in newly-sown fields, and grubbing up the soil in all directions in search of his living and dead food.

The palatine bones constitute the crescentic and posterior border of the palate and nasal cavity: they do not advance further than just before the last molar tooth, instead of occupying a considerable portion of the palate. The palatine processes consist merely of bony laminæ.

As roots and fruits buried in the earth form the natural food of the hog, his face terminates in a strong muscular snout, insensible at the extremity, and perfectly adapted for turning up the soil. There is a large plexus of nerves proceeding down each side of the nose, and ramifying over the nostril, and in these doubtless reside that peculiar power which enables the hog to detect his food, though buried some inches below the surface of the ground. The olfactory nerve, too, is large, and occupies a middle rank between that of the herbivorous and carnivorous animals; it is comparatively larger than that of the ox: indeed few animals, with the exception of the dog, are gifted with a more acute sense of smell than the hog. To the acute sense of the hog are epicures indebted for the truffles which form such a delicious sauce, for they are the actual finders. A pig is turned into a field and suffered to pursue his own course, and watched. He stops, and begins to grub up the earth—the man hurries up, drives him away, and secures the truffle, which is invariably growing under that spot, and the poor pig goes off to sniff out another, and another, only now and then being allowed, by way of encouragement, to reap the fruits of his research. And how many a school-boy has, by watching a hog along the hedge sides, and driven him away just as he began to dig, secured a fine juicy earth nut!

The muscles, too, of the snout of the hog require some notice. According to Cuvier, there are four principal muscles proceeding to it; the superior of these proceeds from the lachrymal bone, which occupies a rather large rhomboidal space upon the cheek, and its tendon bears upon the snout, but does not approach sufficiently near it to unite with it. The next two are situated immediately beneath, and proceed from the maxillary bone; these are partially united, but their tendons pass on separately, one on the one side and one on the other of the extremity of the snout; and the fourth and smallest passes obliquely beneath the tendons of the others, from the nasal bone towards the insertion of the second and third muscles. These longitudinal muscles are enveloped in annular fibres, which appear to be a continuation of the *orbicularis* of the lips, and give to the snout its extreme flexibility.

THE TEETH.

The hog has fourteen *molar* teeth in each jaw; six *incisors* and two *canines;* these latter are curved upwards, and commonly denominated *tushes.* The molar teeth are all slightly different in structure, and increase in size from first to last: they bear no slight resemblance to those of the human being. The incisors are so fantastic in form as to baffle description; and their destined functions are by no means clear. Those in the

lower jaw are long, round, and nearly straight; of those in the upper jaw, four closely resemble the corresponding teeth in the horse, while the two corner incisors bear something of the *fleur de lis* shape of those of the dog. These latter are placed so near to the tushes as often to obstruct their growth, and it is sometimes necessary to draw them, in order to relieve the animal and enable him to feed.

It is seldom that it becomes necessary to ascertain the age of the hog by inspecting his teeth, nor is it by any means an easy task to do so; but still it may occasionally be interesting, and, with reference to those intended for breeding, important to be able to do so when necessary.

The calculation of the age of the hog, by means of reference to the mouth, has not yet been carried beyond three years: no writer seems to have gone much beyond the protrusion of the adult middle teeth of the lower jaw.

The hog is born with two molars on each side of the jaw. By the time he is three or four months old, he is provided with his incisive milk teeth and the tushes: the supernumerary molars protrude between the fifth and seventh months, as does the first back molar; the second back molar is cut at the age of about ten months, and the third generally not until the animal is three years old. The upper corner teeth are shed at about six or eight months, and the lower ones at about seven, nine, or ten months old, and replaced by the permanent ones. The milk tushes are also shed and replaced between six and ten months old. The age of twenty months, and from that to two years, is denoted by the shedding and replacement of the middle incisors, or *pincers*, in both jaws, and the formation of a black circle at the base of each of the tushes. At about two years and half or three years of age, the adult middle teeth in both jaws protrude, and the pincers are becoming black and rounded at the ends.

After three years, the age may be computed by the growth of the tushes; at about four years, or rather before, the upper tushes begin to raise the lip; at five they protrude through the lips; at six years of age, the tushes of the lower jaw begin to show themselves out of the mouth, and assume a spiral form. These acquire a prodigious length in old animals, and particularly in uncastrated boars; and as they increase in size they become curved backwards and outwards, and at length are so crooked as to interfere with the motion of the jaws to such a degree that it is necessary to cut off these projecting teeth, which is done with the file or with nippers. (*Traite de l'Age du Cheval, du Pœuf, du Mouton, du Chien, et du Cochon*, par N. F. et J. Girard.)

THE BRAIN.

This important organ is not so large as from an external view of the cranium we should be led to suppose, the frontal and sphenoidal sinuses contracting the limits of the cranial cavity, and rendering it narrow; it is, however, considerably larger in proportion to the size of the animal than that of the ox or sheep, being about 1-500th part of the weight of the animal; while that of the ox is only 1-800th part, and that of the sheep only 1-750th part. The irregularities of the surface, or those prominences and depressions which define the organs in phrenology, are more marked in the pig than in the horse, taking the size of the animal into consideration, but not so much marked as in the dog.

The brain of the hog, like that of our other domesticated animals, is composed of two substances differing materially in appearance and structure; the one is of a pale gray or ashy hue, and termed the *cortical* or *cineritious substance;* and the other from its pulpy nature, and from being found deeper in the brain, the *medullary substance.*

These two distinct component parts of the brain are allowed by all scientific men to be intended for the discharge of two distinct functions. The mind or reasoning power is supposed to reside in the cineritious portion; and hence the preponderance of that substance in the human brain; while the medullary portion is merely the recipient of outward impressions upon the senses. There is very little difference between the proportions of these two substances in the brain of the hog and that of the sheep; if anything, the hog has more of the cineritious portion than the ox; a proof, physiologists would say, that his reasoning powers or moral faculties are greater. There are anecdotes enough to prove that the hog is possessed of memory, attachment, and social qualities; but at present the system of treatment affords no scope for the development of any but mere brute and gluttonous instincts.

THE CHINESE SUGAR CANE.

A specimen of this plant, which is attracting much notice in the United States, was exhibited at our Provincial Show at Kingston, last September, by Mr. S. J. Lyman, of Montreal. By some oversight or other it was not reported on by the Judges. It was grown in the vicinity of Montreal; and although the seed had not fully ripened, the plant had attained to a great size, indicating that it might, by proper culture, be fully matured as far north as this Province. It is stated, indeed, that Mr. Eliot, of Sandwich, on the Detroit river, had succeeded in bringing it to perfection last Fall, and secured a considerable quantity of good, sound seed, which he intended for distribution. We shall, therefore, know something more decided next season, in regard to the economic uses of this plant, and its adaptation to the climate of this country.

This plant, as its popular name indicates, is a native of China; but for several years it has been successfully cultivated in South-Eastern Caffraria, whence it passed into France and Algeria: in the latter it is brought to great perfection. It has succeeded well—considering the limited knowledge of its habits yet attained—in the district of Columbia, and the middle and Southern States; and even as far north as the New England States, it has been so far matured as to yield a considerable amount of crystalised sugar, which appears to increase in proportion to the diminution of the latitude. In its appearance, habits, and culture, it may be said to resemble Indian corn, and may probably be raised to advantage within the usual limits of the latter. From all we can learn, it appears to be excellently adapted as a forage crop—cattle and pigs devouring the leaves and stalks with the greatest avidity.

The following is from a United States paper :—

New Sugar Plant.—The Chinese sugar cane seed, distributed by the Patent Office last spring, promises to be a complete success at the north. A package of seed was planted in Bucks county, Pa., latitude 40½ degrees north, and has arrived at maturity. The maximum height of the stalk was ten feet, and the product in grain much greater than any cereal under cultivation. The stalk is perfectly green after the seed has reached maturity, and the saccharine principle is then fully developed. The juice, which is most abundant, is very saccharine—quite as much so as the variety cultivated at the south. Whether the juice contains the same amount of crystallisable sugar, remains to be tested. Should it be found equal to ordinary cane in that respect, a new era in the agriculture of the north will be inaugurated, and an immense breadth of land be devoted to its culture as soon as the necessary seed can be obtained, which will require another year at least. The seed having been disturbed late in the spring, which was cold and backward, there is good reason to believe that much planted did not reach maturity. Should the plant fail, so far as the manufacture of sugar is concerned, yet its value as a forage crop cannot be over-estimated at the north. Cattle, horses, and hogs eat the entire stalk with avidity, and no doubt would fatten rapidly on it. The seed, which is small, has a thin black hull, which can be taken off, leaving a fine white flour as the residue. We have no means at present of estimating the value of this flour as an article of food, but no doubt its merits will be fully investigated. The culture required for the plant is similar to that adopted for Indian corn when planted in rows, and the seed should be put into the ground about the same time. As it is a quick and strong growing plant, it should be well manured.

FARM HOUSES.—THE ART OF PLANNING THEM.

The art of planning Farm Houses, like that of subdividing farms, should be reduced to a regular system. It is most commonly a mere chance process—a sort of hap-hazard arrangement of rooms, doors and entries, without the observance of any general rules.

When a farmer is about to erect a house, he should in the first place make two leading inquiries. 1. What are the accommodations I want? 2. What is the amount of means for providing them? In order to assist in answering these questions properly, it may be well to classify houses, from the most simple and cheap, to the most expensive and complex. But it is necessary in the first place, to examine which of the apartments of a dwelling are most indispensible, and which are of various degrees of secondary importance.

Every house must have a kitchen or place for cooking food, a living room for day occupancy, and a lodging room for night—and a pantry and store-room. In the simplest log-hut or board shanty, one room is made to serve all these purposes, the pantry being merely a cupboard, or tier of shelves against the wall. One step above this is the separation of kitchen and dining room, from the bed-room; and still better, is the appropriation of three distinct rooms for these purposes. As we continue to ascend in the scale, we find at last, that the largest and most complete houses have most of the following apartments, although all may not be found in any single house:—

1. Kitchen, with appended iron closet, store-room, dairy, wood-room, and laundry.
2. Bed-rooms, including nursery, and other sleeping apartments.
3. Dining-room.
4. Library, or office.
5. Bath-room.
6. Breakfast-room, parlor, sitting-room, or living-room.
7. Drawing-room and conservatory.
8. Entrance hall and veranda.
9. Cellar.

Now, going back to the two leading inquiries already mentioned, let every one about to build, ask himself: How many of these different rooms will be indispensable for me; and what can I expend in procuring them? We suppose that no man, even with quite moderate means, will be satisfied without,

1. Kitchen and small pantry.
2. Parlor.
3. Nursery or bed-room on the ground floor.
4. Small entry.
5. Bed-rooms with closets above stairs.
6. Cellar.

The cost of a house containing all these will of course depend much upon the nature of the materials, their cost, the size of the rooms, and the cheapness of the finish; but with a plain frame or wooden house, they could be had from six to twelve hundred dollars.

A larger and more complete farm house, costing two thousand or more, would contain

1. Kitchen, pantry, store-room, and iron closet.
2. Dining-room and china closet.
3. Parlor or drawing-room.
4. Nursery or bed-room below stairs, with ample closets, and with bath-room attached,
5. Bed-rooms above stairs, with closets to all.
6. Office or library—which may be simply a small business room, for keeping account books, settling with workmen, making bargains, &c.; or a more complete library, with book-cases and newspaper closets, and even cases for minerals, dried plants, shells, stuffed birds, &c., according to circumstances.
7. Verandas.
8. Cellar.

After the greater or less number of those rooms has been fixed upon, according to wants and circumstances, the next step is to arrange them in the most convenient and economical manner. This is a difficult task to a person of inexperience, but it may be greatly assisted by observing the following rules, and by an examination of published plans, such for instance as we are about to give in the present number of the Register, or which have been furnished in the former numbers.

1. Let the kitchen (the most important apartment) always be on a level with the

principal floor—and for strong light and free ventilation, it should have, if possible, windows on opposite or nearly opposite sides.

2. The pantry or dish-closet should be between the kitchen and dining-room, and easily accessible from both.

3. There should be a set of *easy* stairs from the kitchen to the cellar, and also an outer set into the cellar for admitting barrels, &c.

4. More attention should be given to the arrangement and convenient disposition of such rooms as are in constant use, than those but occasionally occupied. Hence the kitchen and living room should receive more attention on the ground of convenience than the parlor.

5. Every entrance, except to the kitchen, should be through some entry or hall, to prevent the abrupt ingress of cold air, and for proper seclusion.

6. Let the entry or hall be near the centre of the house, so that ready and convenient access may be had from it to the different rooms; and to prevent the too common evil of passing through one room to enter another.

7. Place the stairs so that the landing shall be as near the centre as may be practicable, for the reason given for the preceding rule.

8. Let the partition of the second floor stand over those of the lower, as nearly as may be, to secure firmness and solidity.—*Annual Register.*

FARM CAPITAL.

The following remarks on Farm Management and Capital are from the *Annual Register* issued by Mr. Tucker for 1857:—

The great leading error of most of the young farmers of our country is in not "counting the cost." The first thing they do is to expend not only all their capital in buying as large a farm as possible, but most usually they run largely into debt. Their desire for large possessions leaves them nothing to stock and improve the farm, and hence for many years, while loaded with a discouraging debt, their farms remain poorly provided with animals, with good implements and with a good supply of manure. They are therefore compelled to perform all their operations to a great disadvantage; their small crops afford no net profits, and they become discouraged and lose the energy and enterprise essential to success. These causes are the most fruitful source of poor and slip-shod farming in America. It is not very difficult, in traversing the country, to point out among the various occupants of the land, from the appearance of the premises, such as are burdened with heavy debt, from those who have a good supply of spare capital.

It has been remarked that in England, where taxes are levied on every thing that a man wears and every thing that he eats, and where the cultivator must farm well or not at all, the amount of capital to begin with must be about as great in *renting* a farm, as in *buying* one in the best farming districts of our own country. The result is, every thing is done in the best manner; and if farmers are *compelled* to farm well there or else become bankrupt and starve, why may we not adopt from *choice* the same advantageous course in this country,—to lay up handsome profits against a rainy day,—and be enabled to enjoy the rare gratification of feeling able to give liberally to charitable or useful objects, without deranging one's financial concerns?

One great reason why young (and often old) farmers are so poorly supplied with surplus capital after buying land, is, that they have never estimated how much they will want. An estimate of this sort would prevent many heavy purchases of farms and the entire consumption of means,—it would induce smaller outlays in land, and larger expenditures in the means for making heavy net profits. We therefore purpose, by way of affording some assistance on this subject, to point out what a moderate farmer actually and indispensably requires besides a farm and *good buildings.*

The *average* of farms in this country will not perhaps exceed one hundred *improved* acres. The following will be required for commencing operations to advantage.

Live Stock.—This will vary much with the character and quality of the land, its connection with market, &c., but the following is a fair average, for fertile land, and the prices an average for different years, although lower than they have recently been:—

3 horses, at $100	$300
1 yoke of oxen	100
8 milch cows, $25	200
10 steers, heifers, and calfs	100
20 pigs, $5	100
100 sheep, $2	200
Poultry, &c.	10
	$1010

Inplements.—To farm *economically*, these must be of the best sort, especially those that are daily used. A plow, for instance, that saves only *one-eighth* of a team's strength, will save an hour a day, or more than *twelve* days (worth $24,) in a hundred—an amount, annually, that would be well worth paying freely for the best plow. A simple hand-hoe, —so well made that it shall enable the labourer to do one hour's more work daily, will save twelve days in a hundred,—enough to pay for many of the best made implements of the kind. These examples are sufficient to show the importance of securing the best.

2 plows fitted for work, and 1 small do	$25 00
1 cultivator	7 00
1 harrow	10 00
1 roller	10 00
1 seed planter	15 00
1 fanning mill, 1 straw cutter	40 00
1 root slicer	28 00
1 farm waggon, 1 ox-cart, one-horse cart, with hay racks, &c	180 00
Harness for three horses	50 00
1 shovel, 1 spade, 2 manure-forks, 3 hay-forks, 1 pointed shovel, 1 grain-shovel, 1 pick, 1 hammer, 1 wood saw, 1 turnip-hook, 2 ladders, 2 sheep-shears, 2 steelyards, (large and small,) 1 half-bushel measure, each $1,	20 00
1 horse-rake	8 00
2 grain-cradles, 2 scythes	12 00
1 wheel-barrow	5 00
1 maul and wedges, 2 axes	6 50
1 hay-knife, 1 ox-chain	6 00
1 tape-line, for measuring fields and crops	2 00
1 grind-stone	3 00
1 crowbar	2 00
1 sled and fixtures	30 00
Hand-hoes, hand-rakes, baskets, stable lantern, currycomb and brush, grain-bags, &c., say	15 00
	$474.56

The adition of a subsoil plow, sowing machine, mower and reaper, thrashing machine, horse-power for sawing wood, cutting straw, &c., would more then double the amounts but young farmers may hire most of these during the earlier periods of their practice. A set of the simpler carpenter's tools, for repairing implements in rainy weather, would soon repay their cost.

Besides the preceding, the *seeds* for the various farm crops, would cost not less than $75; hired labour for one year, to do the work well, would probably be as much as $350 and food for maintaining all the domestic animals from the opening of spring until grass, and grain for horses till harvest, would not be less in value than $100 ; 525 in all.

For domestic animals	$1010 00
" implements	474 50
" seeds, food and labor	525 00
	$2009 50

That is, *two thousand dollars* are needed the first year, for stocking and conducting satisfactorily the operations of a good hundred acres of improved land; several items will doubtless be supplied or added to the list by the recollection of every farmer.

This sum will no doubt seem frightfully large to some who have never made a similar estimate: we would therefore request such to sit down and see how much they can reduce the amount, for vigorous and energetic farming. They will probably be surprised to find

how few of the items they can spare without inconvenience or loss; and the question will arise, how can we command so large an amount? We answer, Buy smaller farms--expend less in land, and more means to till it *well.* Much as we dislike running into debt, it is better to borrow money for the latter, than the far more common practice of borrowing money for land. For, by running in debt for land, followed by bad tillage, the young farmer will be long in extricating himself from a depressing load; while on the contrary, movable capital will enable him to perform everything at the right moment of time, and in the very best manner. He will not be too poor, to be economical, but will often save much by a little timely outlay.

A single example will show the economy of a prompt use of means. Two farmers had each sown a crop of rutea bagas. The first who was always enabled to take time by the fore-lock, hoed the young weeds when only an inch high, with very little labour, and the young plants grew vigorously. The other, being crowded in his work from deficient calculation, and consequently deficient help, was compelled to defer his hoeing ten days, when the weeds had grown six inches high, and had smothered his crop. The labor was more than triple the former, and the crop greatly inferior. We could multiply instances of all kinds bearing in the same direction, and showing that the farmer who in his eagerness to possess many acres, weakens his mean for present action, not only adopts the worst kind of economy, but compels himself to continue in this losing system for years to come.

AGRICULTURAL EXPERIMENTS.

A great many valuable hints and suggestions for practice may be learned from agricultural papers. It is not uncommon to hear farmers remark that they have derived more pecuniary advantage from a single article, than the price of the paper for many years. But to prevent disappointment, farmers must always use their judgment; circumstances vary so greatly, that what is highly beneficial in one case may be ruinous in another. Great mischief is done by looseness, carelessness, or partiality in reporting experiments; a single trial of a crop, sown by guess-work, cultivated at random, and measured by a hasty glance of the eye, is often considered decisive by the inaccurate farmer. He sees a little, presumes a great deal, and jumps to a conclusion, when perhaps if he had taken the twenty other operating causes into the account, there would have been no conclusion at all. Opinions are sometimes formed and facts afterwards sought to support them; the report of such facts is not worth the ink that records them. It is no wonder that some, are disheartened by these, from all trials.

Hardy Pears for the North.—Seckel, Flemish Beauty, Giffard, Virgalieu, Sheldon Lawrence, Winter Nelis; *on pear stocks.* Louise Bonne Jersey, Tyson, Angouleme Winkfield, Gisband's Summer, Glout Morceau, *on quince.*

Apples for Cold Regions.—Red Astrachan, Sops of Wine, Early Joe, Gravenstein, Oldenburgh, Porter, St. Lawrence, Fameuse, Ribston Pippin, Baldwin, Jonathan, Peck's Pleasant, Pomme Grise.

Apples for Michigan.—At the recent meeting of the Michigan Fruit Grower's Association, the following apples were recommended for general cultivation in that state, viz: Swaar, Rambo, Yellow Bellflower, Esopus Spitzenburgh, Rhode Island Greening and Belmont Waxen. The Baldwin, although found to be variable, and often badly affected by dry rot, was on account of its many excellent qualities, also similarly recommended.

Pears.—At the same convention the following pears were recommended for general cultivation:—Glout Morceau, Flemish Beauty, (for light soils,) Stevens' Genesee Dearborn's Seedling, Swan's Orange, (Onondaga,) and English Jargonelle. The latter must be picked and house ripened, or it rots at the core and becomes worthless.

Manures for Fruit Trees.—The best manure for fruit trees, under usual circumstances, are composts made of stable manure, turf, muck, or loam, with a small quantity of ashes, and still less lime. The addition of guano, bone manure, &c.; increase its value, The proportions may be one-third yard manure, over one-third turf, loam, or peat, and a tenth ashes, a twentieth guano or bone manure. The special manures applied separately, *sometimes* produce evil results, but not usually.

Number of Plants or Trees that can be planted on an acre of ground, at the following distances apart, in feet.

Distances apart.	No. of Plants.	Distances apart.	No. of Plants.
1 by 1	43,560	7 by 7	888
1½ " 1½	19,360	8 " 8	680
2 " 1	21,780	9 " 9	537
2 " 2	10,890	10 " 10	435
2½ " 2½	6,969	11 " 11	360
3 " 1	14,520	12 " 12	302
3 " 2	7,260	13 " 13	257
3 " 3	4,840	14 " 14	222
3½ " 3½	3,555	15 " 15	193
4 " 1	10,890	16 " 16	170
4 " 2	5,455	17 " 17	150
4 " 3	3,630	18 " 18	134
4 " 4	2,722	19 " 19	120
4½ " 4½	2,151	20 " 20	108
5 " 1	8,712	24 " 24	75
5 " 2	4,356	25 " 25	69
5 " 3	2,904	27 " 27	59
5 " 4	2,177	30 " 30	48
5 " 5	1,742	40 " 40	27
5½ " 5½	1,417	50 " 50	17
6 " 6	1,210	90 " 60	12
6½ " 6½	1,031	66 " 66	10

Multiply the distances into each other, and divide it by the square feet in an acre, or 43,560, and the quotient is the number of plants.

VELOCITY OF WIND.

Wind is air in motion. Its force depends on its speed. When its motion is slow, it constitutes the soft, gentle breeze. As the velocity increases, the force becomes greater, and the strong gale sweeps round the arms of the wind-mill with the strength of many horses and huge ships are driven swiftly through the waves by its pressure. By a still greater velocity of the air, its power becomes more irresistible, and solid buildings totter, and forest trees are torn up by the roots in the tracks of the tornado.

The force of wind increases directly as the square of the velocity, Thus a wind blowing ten miles an hour, exerts a pressure four times as great as at five miles an hour, and twenty-five times as great, as at two miles an hour. The following table exhibits the force of wind at different degrees of velocity :—

Miles an hour.	Pressure in lbs. on a square foot.	Description.
1	.005	Hardly perceptible.
2	.020	Just perceptible.
3	.045	
4	.080	Light breeze.
5	.125	
6	.180	Gentle, pleasant wind.
7	.320	
10	.500	Pleasant, brisk wind.
15	1.125	
20	2.000	Very brisk.
25	3.125	
30	4.500	Strong, high wind.
35	6.125	
40	8.000	Very high.
45	10.125	
50	12.500	Storm or tempest.
60	18.000	Great storm.
80	32.000	Hurricane.
100	50.000	Tornado, tearing up trees, and sweeping off buildings.

WHEAT, FROM WHENCE DERIVED?

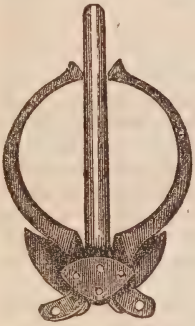
Our readers will probably remember some experiments having been made on the trans formation of wheat, by repeated cultivation of a grass called by botanists Ægilops ovata and a native of those countries bordering the Mediterranean, which have been considered the original home of the cereals from time immemorial. The experiments were made by M. Fabre, and a translation of his paper respecting them was published in the *Journal of the Royal Agricultural Society*. We confess that the facts advanced by M. Fabré appeared to us conclusive, and to have been conducted so as to secure, as far as possible, immunity from hybridiz ition, by carrying on the experiments amidst vineyards, at a distance from the fields of wheat. It appears, however, that there exists a difference of opinion on this subject among botanists, both in this country and on the continent. In England the majority of them were disposed, we believe, to adopt the nonhybridizing view of the question while in Germany and France the opposite opinion appears to have prevailed.

A writer in the columns of a contemporary lately stated that Dr. Regel, the Director of the Imperial Botanical Garden at St Petersburgh, has recently informed him that having repeated the experiments of M. Fabre, he has satisfied himself that the reported transformation is merely the effect of repeated process of hybridization. Dr. Regel, it appears, went directly to the experiment of hybridizing the ægilops with the pollen of wheat. He declares the result to have shown that there is nothing of a gradual transition from one plant into another, but that by hybridization he obtained from Ægilops ovata a plant exhibiting a much greater affinity to wheat than to ægilops. The plants did not differ, he says, the least from each other: there was nothing like a gradual change.

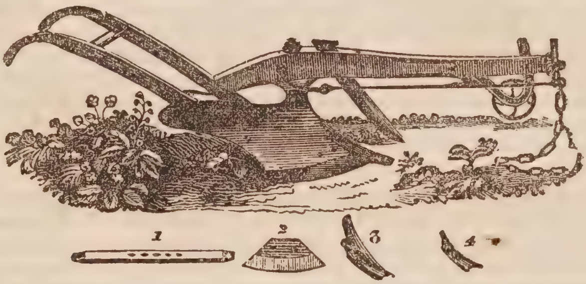
With respect to the cases stated in M. Fabre's experiments of other transitions, D. Regel considers them as giving rise to the following questions:—1. Whether there are in reality any of these transient forms? 2. Whether they have not been produced by the return of the hybrid towards one of its parents? And lastly, Whether they are not to be explained by the repeated fecundation of the hybrid by one of its parents? In expressing himself in favor of the last supposition, he admits however that he has not himself seen the latter transition. He admits also that a hybrid when perennial cannot returnt o one of its parents by sexual propagation, but contends that it is different with the sexual propagation, where experiments with newly-raised hybrids, fertile even in their pollen, must decide, and can only decide the question. Dr. Regel further adds, that he has left some specimens of his hybrids between wheat and Ægilops in isolated places, where they may fecundate themselves; while he has fecundated some again with Ægilops, and others with bearded wheat. He then adverts to a theory started by Dr. Lindley, to the effect that the Ægilops ovata and Triticum vulgare are extreme forms of one species. This opinion he considers to be disposed of by his hybrid having pollen which is entirely sterile. At the same time, he admits the question to be still open whether this hybrid may not fertilize itself by means of its own pollen.

At the late meeting of the British Association, Professor Henslow read a part on some read some experiments which he had made for the purpose of deciding the question. These had so far succeeded in changing the character of Ægilops squamosa as to lead him to conclude that the original statement of M. Fabre that Ægilops ovata was the origin of Triticum sativa was not altogether without foundation. He exhibited specimens in which Ægilops squamosa had undergone considerable change, but he had not yet succeeded in obtaining the characters of Triticum sativa of wheat. For ourselves we confess that, putting aside the questions in physical botany to which this alleged transformation of Ægilops into wheat gives rise, we were disposed to treat the experiments of M. Fabre as offering a solution to a very puzzling question, that of the native country of wheat in a wild state. The fact that Ægilops is indigeneous to those countries bordering the Mediterranean, which have from time immemorial been known as the birth-place of wheat and the early scene of the exploits of Ceres, appeared to furnish strong *a priori* evidence in favour of M. Fabre's researches. If wheat is not derived by cultivation from Ægilops, from what grass is it derived; aud if not from any, were is its native country? Who ever saw wheat wild, except when it had escaped from the haunts of man? Who ever saw it, any more than a wild red cabbage, or a cauliflower, or a wild swedish turnip? Wheat must have had some wild original; and if it is not Ægilops, what is it?—*Farmer's Magazine.*

PATENT BOW PIN.



This cut represents a new Yankee invention, that may recommend itself to our Canadian ox-drivers who are liable to lose their pins. The outside circular parts are opened from the centre or body part by a spring, when the latter part is put through a hole in the bow, and the spring closes the circular parts again, clasping the bow on both sides, and prevents all possibility of dropping out.



SELF-SHARPENING STEEL-POINTED PLOUGH.

Ploughs of American pattern and manufacture are being every year more extensively used in Canada. They are cheap; and when made at such establishments as Ruggles, Nourse & Co., Boston, where the best second-growth timber is used, they are very strong and durable. The cut represents a plough very highly spoken of by those who have used it. It is of the same form and general construction as the celebrated Eagle Plough, with the exception that the point and share are in two pieces, which are made on an improved self-sharpening principle.

The point, as shown detached at No. 1, is simply a bar of iron sharpened at each end, about twenty inches long, and which passes upward into the body of the plough, where it is confined with one bolt. As it becomes shorter, and worn on the the under side, it is readily moved forward and turned the other side up, thus always presenting a sharp point of full length and proper shape. When one end is worn off five inches, the other end is placed forward, and performs a like service. The wing or share, as shown detached at No. 2, is made of either wrought-iron with steel edge, or of cast-iron, and is also reversable, being used either end forward, or either side up.

Both point and share are so very simply constructed, that any blacksmith can replace them at trifling expense, or perpetuate the use of the original by new-laying with steel, as they become worn.

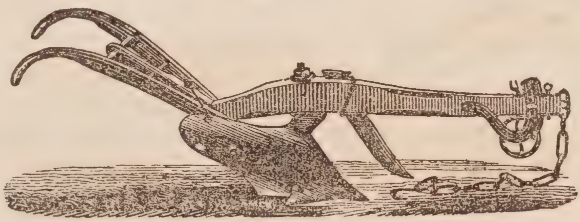
There is a coulter of cast-iron a little back and above the point, shown detached at No. 3, forming part of a cap, shown detached at No. 4, which cap protects the

shin or forward part of the mould-board. It is confined in its place by the same bolt that confines the point, and is cheaply replaced when worn. The manufacturers state that—

"This is much less expensive, and in many kinds of soil quite as serviceable as a wrought coulter or cutter, as shown by the cut above. They are sold with one or both, or with simply the cap.

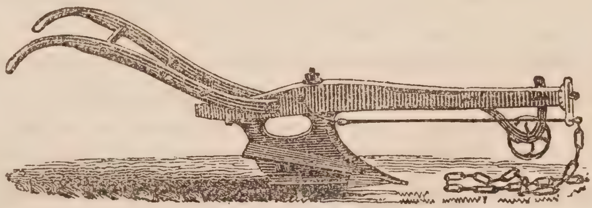
"Self-sharpening points and shares have been considered objectionable, inasmuch as they have not possessed sufficient strength, owing to their complicated *construction* of *cast metal;* but a single glance at these ploughs will convince any person, by the simple construction of the point and share of *wrought-iron* and *steel*, that they combine strength and durability unequalled by any other form or construction, and that they are kept in repair at much less trouble and expense.

"The point can be used projecting more or less forward, causing the plough to incline more or less into the ground, as different soils may require."



SWIVEL OR HEAVY ROAD PLOUGH.

The cut represents a Swivel or Heavy Road Plough. It is made very strong, and is especially designed for the roughest road work, being of a size and capacity to do work requiring the draught of four to eight cattle. It is extensively used by road makers in the United States, being considered by them a great labour-saving implement. It will break the ground, and give the general shape to a road in the newest or most difficult soils, ploughing among roots, stumps, and stones, without breaking, and making a very imposing appearance with six or eight oxen hitched to it. For the annual repair of roads, it is most valuable, as it will speedily and with great facility open the ditches at the sides, and furnish earth to shape up the road-track.



SUBSOIL PLOUGH.

In the year 1840, Ruggles, Nourse, Mason & Co., imported from Scotland the first Subsoil Plough ever used in the United States. Although an effective implement, it was too complicated, cumbersome, and costly to suit the American farmers; and the importers, therefore, made a plough of equal capacity, but much lighter, of

simple construction, better adapted to practical use, and of a less price. It being well received by the public, the manufacturers were induced to make several sizes, which have been used with satisfaction in different sections of the country.

The subsoil plough follows directly after and in the channel made by the plough turning the surface soil, loosening and pulverizing the lower soil to any desirable depth, without bringing it to the surface. The subsoil plough is specially valuable in lands where the top soil rests upon hard-pan but a few inches below the surface, and in lands of a stiff clay or other tenacious soil. Although, at first thought, it may seem a paradox, yet in the working of such lands the use of the subsoil plough is of great advantage, both in dry and wet seasons. If permitted to do so, plants will, in a dry season, extend their roots deeply into the earth; and by use of the subsoil plough, the stiff soil or hard-pan is opened and pulverized, so as to promote the ascent of moisture from below, as well as to permit the roots of vegetation to push lower down, and away from the more parching influence of the sun. Again, lands of a stiff, compact soil, are, in a wet season, naturally too cold, clammy, and moist; but by being deeply loosened and opened, the excess of moisture filters below—the surface soil thus relieved is made light, mellow, and warm, and the crops prosper accordingly.

TO PREVENT A COW SUCKING HERSELF.

To the Editor of the Agriculturist.

Dear Sir,—I have a very fine cow that has contracted the habit of sucking herself. We have tried various plans to prevent it, with more or less success. Making her wear a wooden frame on her neck, has succeeded pretty well, but this prevents her licking herself, which is said to be injurious. Can you tell me of any better plan? I did not observe anything in the last volume of the *Agriculturist* on the subject, and on looking over the Index, in the last number, I see no reference to it. Be so good as to continue the paper. I would not be without it for many times its cost.

Trafalgar, Dec. 23rd. Respectfully yours,

A. W.

Remarks—During the winter, a "fine cow" should be stabled the greater part of the time. The old-fashioned method of securing cattle in the stable between two upright posts or "stanchions," will prevent your cow from sucking herself while within doors. If she is let out for water and exercise immediately after being milked, she will not be able to rob you to any great extent. The best remedy we know of for summer use, is the following:—Prepare a hickory stick eight inches long and half an inch in diameter, leaving a slight swell each side of the centre; and thrust this stick through a slit in the nose. The stick will project each way horizontally, and if properly made it will not come out. She will find it difficult to suck herself with this ornament in her nose. The moustached dandy, who attempts to eat soup without dipping his hirsute appendage in the spoon, is in a very similar predicament.

NEW PRAIRIE PLOW.

We see in the western papers notices of a newly invented plow, which promises to be a very valuable acquisition, if what is said of it be correct. Mr. E. Abbott, former editor of the *Valley Farmer* at St. Louis, writes to that paper as follows:—

"This afternoon we rode out on the prarie to witness the first experimental trial of a new prairie plow, the first of which has just been finished at the Eagle Foundry in this city. Mr. Jesse Frye, its inventor and builder, is a most ingenious mechanic, and by the production of this implement has put himself in the front rank of inventors. The plow of which we speak is styled 'An adjustable anti friction carriage plow: and when we say that with two horses attached to it, a furrow twenty-four inches wide and five inches thick was rapidly turned in the toughest kind of prarie sod, and that too in ground that had been beat down by cattle, and dried by the summers drouth, until it was as hard and as dry as ground could be, our readers will not think us extravagant when we style it one of the greatest inventions of the age. Moreover in this trial, the driver of the team and the inventor of the plow, both heavy men, rode at their ease on a seat prepared for the purpose, and placed over the plow. It appears a very simple machine easily adjustable, and not liable to get out of repair. An ordinary plow-man can ride at his ease, manage the plow, and drive without difficulty. A select number of the best mechanics and scientific men of this city, all without a dissenting voice, pronounced themselves wonderfully pleased at this success, and considered that it would save at least 75 per cent. of the power usually employed in breaking prairie. Several farmers present affirm, that with a team of four horses, they could easily break four acres per day of prarie, than they could two acres with an ordinary breaking team of twelve oxen. Some of the peculiarities about this plow are:—

"*First*—It is supported on a carriage which runs on four wheels. This carriage takes all the *weight* of the plow, leaving nothing to be dragged on the ground. It also overcomes all the *land side* friction— the share being held firmly in its position by its attachment to the frame of the carriage, cannot press upon the land sids. Thus when the plow is out of the ground, a boy twelve years old can move it all about the lot, a feat not easily performed by two men with an ordinary breaking plow.

"*Second*—The mold-board is composed of anti-friction rollers, which are arranged in most scientific manner, so as to lift the turf and turn it over, with the least possible resistance, thus overcoming nearly all the friction from this operation.

"We believe Mr. Frye has perfected an improvement in the plow which is of immense importance to the farmers of our country, and as the principle is equally applicable to plowing all kinds of land, we predict a great change in the manner of performing this hitherto laborious but necessary part of farm labour. We learn from Mr. Frye that he will visit several of the fairs this fall."

We add to the above the following from the Illinois *Farmer*.

"On the 16th of August there was a public trial of this plow on the Sangamon Bottom Prairie, at what is called 'Marsh's Ferry.' The trial was made on what is called swamp ground, the toughest piece of ground that could be found in the whole prairie. The plow was put into the ground about three o'clock and was drawn by four horses. It did the work well, cutting some twenty-six inches. The ground was, of course, baked hard. It was hard work for the horses; but it was conceded by good farmers present, that eight yoke of cattle would not have drawn a common plow, cutting the same width which was cut by the Adjustable Plow, with anything like the ease with which the horses did their work.

"At the close of the trial, the company present was organized into a meeting, and the following resolution passed:—

"Resolved, It is the sense of this meeting that the 'Adjustable Anti-Friction Carrriage Plow,' invented by Mr. Jesse Frye, is an important improvement on any plow now in use, and will do more with less power than any plow with which we are acquainted."

We need only add, that since the above noticed trial of the plow was made, it has been subjected to several other trials, and in all cases has been successful. The exact amount of the power saved cannot be ascertained except by the use of the dynamometer.

To see two or three horses breaking prairie with a plow cutting twenty-six inches—the plowman seated comfortably on a seat above the plow—having the team and the plow at perfect control—is a gratifying and wonderful sight, even in these days of progress.—*Wisconsin Farmer.*

AGRICULTURAL SOCIETIES—ONE BENEFIT OF EXHIBITIONS.

A recent number of the Albany *Country Gentleman*, gives some extracts from the address delivered before an Agricultural Society, in which some of the advantages of these Institutions are mentioned; which, in our opinion, are worthy of repetition. Few, comparatively, of our farmers who refuse to subscribe *a dollar* a year, to support their Township or Country Society, stop to think how much benefit these Societies have already conferred upon them in the improved implements they have been the means of introducing. If they did, they would not allow these Societies to languish, as they often do, notwithstanding the public grant so liberally bestowed, for lack of popular support. Read the opinions of an intelligent American farmer, and think twice before you refuse your subscription this year.

In speaking of the want of interest among so many farmers in these organizations for the promotion of good husbandry and rural industry, and the benefits which flow from their exhibitons. The gentleman referred to says:

"These fairs, besides furnishing many valuable hints in regard to field crops and cattle raising, afford to farmers an opportunity to examine, compare, and test the various improved implements of husbandry which the mechanical ingenuity of the day is supplying. It is to be expected that an age so fertile in inventions as the present, will be distinguished by some valuable discoveries in the application of machinery to the various arts of agriculture, and by the multiplication of implements which are *not worth* possessing. And the fact corresponds with the expectation. There are improvements, more or less valuable, in every customary implement of the farm—inventions such as the drill, the reaper, and the thresher, which lighten and facilitate the labors of the farmer; whilst there are, also, new implements and modifications of old ones that *promise fairly*, but fail in the performance—that excite hopes only to disappoint them."

Such worthless or imperfect implements must be peddled off among the less informed and less discriminating of the farming community. The same speaker observes:

"If a farmer shuts himself up in the solitude of his own home, (never attending exhibitions where implements are tried and tested,) the agent of the worthless machine is sure to find him out, and to impose on his ignorance. Then comes the vehement denunciation of the Yankee cheat, and the indignant rejection of all applied machinery. If that farmer had attended the last fair, and had observed the different patterns of instruments—witnessed and compared their practical operation, and heard from others the testimony of experience, he coud not have been imposed upon, and would have been saved the fruitless waste of money and of wrath, aud would have gone home, if not with an improved tool, with improved ideas no less valuable.

"The agricultural fair tries every man's work, of what sort it is; and enables the farmer to prove all things, and to hold fast that only which is good. It is the cure of empyricism aud imposture."

This advantage of agricultural exhibitions is one of much value, as the wages of laborers are so high, and so likely to continue high, that the farmer must depend more and more on labor-saving machines.

This advancement of the laborer's wages we are not disposed to regard as an evil; or if an evil, one, at least, with several counter-balancing advantages. One of these is that high wages promote the independence of the laborer and the comfort of his family. Besides some incidental advantages of this kind, the direct effect of high wages on agriculture must be favorable in the end, inasmuch as they will compel the farmer to practice a more careful husbandry. When a farmer has to pay high wages

for labor, he cannot afford to let his manures go to waste, or his fields to run to brambles and weeds, or his cultivated fields to produce less than half of what they are capable of producing. And from this cause, also, will arise a growing demand for machinery, which will excite an inventive genius and speculating disposition, flooding the country with implements of all kinds, good, bad, and indifferent. Now the more the farmer is driven into improved culture, and the employment of labor-saving machines, the more will he need, the counsel and assistance of agricultural societies, and of that kind of knowledge and experience which he can acquire better from them than from any other source that will be open to him. Farmers should, therefore take more interest in agricultural societies, as, *when properly managed*, they can promote his interests to a very great and profitable extent.

PREVENTION BETTER THAN CURE.

One of the best systems of medical practice ever known, and which will probably stand at the head of the list for all coming time, is NURSING. Good care will do more than all the medicine in the world without it. Medicine is sometimes very good, but the most skilful physicians have found they could do but little with serious cases without that intelligent and careful watching at all times required for the removal or prevention of irritating causes, and known as good nursing.

The writer once owned a horse suffering from an excessive cough. Numerous remedies were prescribed by kind neighbors, enough, doubtless to have killed him at once. It was concluded to discard all, to give the best attention to his wants, and avoid everything which causes or prolongs a cold. This was during the changeable weather of autumn—and he was blanketed whenever a chilly air was apprehended; he was worked very moderately, always avoiding prespiration, and he was fed on succulent food which was supposed to favor expectoration, and especially young clover. In a few weeks nature had performed a perfect cure; and if any one of the nostrums had accidentally been employed, and had not proved very prejudicial, it would unquestionably have received high praise for its efficacy. It is of the most importance to discriminate between a recovery *by virtue* of a medicine, and *in spite of it*.

To *keep animals in health*, is more important than to cure sick ones, and for this purpose a few leading rules should be always observed, and which cannot be out of place here.

1.—Always feed regularly, as to time and quantity. Many animals are made sick by starving at one time, and stuffing at another. Especially, never *overfeed*.

2.—The same rule must be observed with watering—and let the water be *pure*.

3.—Never *overwork* an animal—regular and moderate exercise will enable a working animal to do more the year through, by all odds, than any hurried driving at one time and resting and overfeeding at another; and be infinitely less liable to disease.

4.—Allow a regular supply of salt—it is useful, but an observance of the preceding rules without salt, will be imcomparably better than their infraction with it.

5.—Never feed musty or bad food. If musty fodder must be used, pass it through a rapid cutter, and moisten, salt and meal it.

6.—Avoid unwholesome or poisonous plants in pastures and in hay.

7.—Guard all animals against cold rain and snow falling on them, and against lying on cold wet ground.

8.—All changes of food must be *gradual*. If from hay to grass, let the grazing be but an hour the first day, two hours the next, three the next, &c. The same caution must be carefully observed in beginning to feed with roots, grain, &c.

9.—Be carefnl that animals always have enough of exercise—and plenty of pure, fresh air. Stables must be well ventilated—animals often become sick from breathing foul air.

10.—Lastly, and by no means least, let strict cleanliness be observed. All animals, even pigs, kept clean and curried, are found to maintain their flesh better, or fatten faster, than when dirty and neglected—and cleanliness is more important to health than for flesh.

PRESENCE OF MIND.

There is no branch of practical education of greater importance than teaching *presence of mind.* Disasters which occur are greatly increased by the fright and perturbation which are generally manifested on such occasions. Self-possession and practical knowledge combined, often give an immense superiority to the person who can command them. The world-felt loss of the steamship Arctic could have been prevented, if a single individual on board had possessed the two qualities:—by immediately driving the water from one boiler, and filling the other, the rent in the ship's side would have risen above the water's edge, and the hundreds who perished been saved.

Fright and confusion often result directly from conscious ignorance, and a feeling of inability to help one's self. Hence it is of the utmost importance to fix clearly and indelibly in the mind at all times what course should be pursued when accidents occur. The remedy may be instantly applied. A volume should be written to teach this knowledge, which should be taught in schools and colleges, as equally important with arithmetic, chemistry, and book-keeping. As an illustration of our meaning, and also as a small contribution to this object, we furnish a few rules to be observed in certain cases of emergency or of accident.

If a house take fire, instantly endeavor *to keep all the doors shut.* Currents of air and of flame cannot pass through, and it will burn much more slowly, and furniture may be saved, and perhaps the conflagration so retarded until it may be extinguished. We have known houses in a mass of flames in a few minutes, merely in consequence of doors left wide open in the fright and terror of the occasion.

If the lower story is in flames, and inmates are above, the first thing is to direct the attention to loosening a bed cord or tying bed clothes together, which, fastened to the bedstead, will admit a safe descent. A prompt attention to this particular would often save broken limbs, from leaping.

If horses become frightened and run, in all cases *keep your seats,* unless they stop so that you may jump out safely. A passenger striking the ground or any obstacle, alone and unprotected, is far more likely to be injured, than when encased in the protecting walls of a carriage. Always avoid the extreme folly of seizing the reins from the driver.

If harness breaks while ascending a hill in a waggon instantly turn the horses' heads from the bank or precipice if there be any. This will cause the wheels, in backing, to turn to the same side, and prevent falling or running off. The same precaution is to be observed, if a balky horse should commence backing.

Horses which run away and cannot be stopped, may be checked (and sometimes cured) if a long ascent is at hand, by turning them up the hill. They soon get tired of this sort of hard work, and if then urged still upward, will be reluctant to run away again

To save horses from a rapidly burning barn, they must be instantly blindfolded. They cannot otherwise be led out.

In assisting persons who have broke through ice,—procure, if possible, a pole or stick, —laid horizontally on the ice, it will sustain a considerable weight, even if the ice is thin and also assist in laying hold for extrication. Many persons lose their lives in water, by slipping off the ice edge while attempting to raise themselves on their arms. It is better to approach the edge *sidewise,* and attempt to *roll out.*

In case of a severe wound, and danger of bleeding to death, before medical assistance arrives, immediately tie a knot in a pocket handkerchief—(or if one is not to be had, use a suspender)—then tie the handkerchief loosely around the part cut, *between* the cut and the *body* placing the *knot* about a couple of inches from the wound; put in a short stick through the bandage and *twist* until the blood stops running. Bleeding to death may almost always be prevented in this way.

On resuscitating persons who have been drowned—place them upon a table or bed with the head a little elevated; procure a pair of bellows if possible—place the nose in the mouth of the patient, close the rest of the mouth with a cloth, and forcibly fill all the lungs. Then remove the bellows, press upon the lungs, and drive out the air. Repeat the operation as rapidly and thoroughly at possible for several hours—meanwhile keep the body and extremities warm by hot flannels and rubbing. If no bellows can be had, let the strongest person present inflate his lungs to their full capacity, immediately place his mouth on that of the patient, force the air into his lungs—imitate natural breathing as far as possible. The reason why a person dies from drowning is that the supply of air is cut off from entering the lungs—*no water* by any possibility ever enters them, so by

giving the lungs a copious supply of fresh air and inducing circulation by friction and warmth, we are doing all that can be done to restore the patient.

In cases of poisoning, if discovered immediately, take a thorough emetic at once. Many things will answer if no better can be found—a dessert spoonful of mustard in a gill or less of warm water, or three or four grains of tobacco, (a small quid) will operate as a ready emetic.

KNOWLEDGE OF ENTOMOLOGY.

How much the farmer, and the gardener, need this knowledge—we mean the knowledge of the nature, habits, and haunts of the insects that infest their crops and fruits. These are some of the reasons why they need this knowledge. Such knowledge will enable him to *prevent* their ravages, by destroying the eggs. It will enable him to *remedy* their ravages by destroying them were they exist. It will enable him to economize time and strength, by doing the needful work exactly at the right time. It will enable him to decide whether he should make any effort at all; for in certain cases the evil is incurable. It will give him patience and courage; for he will, in many cases, learn that the pests are only temporary, and that a few years will witness their departure. It will suggest to him what *new* remedies may be tried, based on the habits in which it will instruct him. It will show him how great results may flow from a single act—how a whole district may be visited with an insect pest, or escape that visitation by a single negligence, or a single precaution. It will enable him to aid others who need the information he has gathered, but whose opportunities have not permitted them to gain it for themselves.—*Ohio Farmer*

Evidences of Good Farming.—The requisites and evidence of good farming have thus been enumerated by good authority:—" A good soil, well tilled, and kept free from various weeds; lots well fenced, and suited in number to the size of the farm; substantial and convenient barns and stable of sufficient dimensions to contain the produce of the farm, and to comfortably house the cattle kept on it; a judiciously arranged dwelling, in a neat condition, with a filtering cistern; convenient buildings to facilitate the economical management of the farm—such as a wood house, a waggon and tool house, a workshop, granary and corn house, a convenient piggery, an ice-house, ash and smoke house—all secured from decay by being well raised from the ground and neatly painted and whitewashed; convenient yards attached to the barns and stables, so arranged as to prevent waste of the liquid manure, well sheltered from the blast of winter, and provided with water for the cattle; door-yards laid with grass and flower-beds, and shaded by ornamental trees, indicating the dwelling of taste, health and comfort; a kitchen garden highly cultivated, and containing the various species of vegetables raised in our climate, with strawberry and asparagus beds; a fruit garden or orchard, where choice apples, cherries, plums, raspberries, gooseberries, blackberries, currants, &c., are found."

The hog malady in Ohio is becoming somewhat alarming. It is computed that within a radius of 100 miles around Cincinnati, no less than 60,000 or 70,000 hogs have fallen a prey to the distemper. Hitherto all attempts at a remedy have failed; and, being epidemic in its character, it is as yet known only as a kind of cholera.

Perpetual Light.—A most curious and interesting discovery has just been made at Laugres, in France, which we have no doubt will cause a searching scientific inquiry as to the material and properties of the perpetual burning lamps, said to have been in use by the ancients.—Workmen were recently excavating for a foundation for a new building in a debris, evidently the remains of Gallo-Roman erection, when they came to the roof of an under ground sort of cave, which time had rendered almost of metallic hardness. An opening was, however, affected, when one of the workmen instantly exclaimed that there was light at the bottom of the cavern. The parties present entered, when they found a bronzed sepulchral lamp of remarkable workmanship suspended from the roof by chains of the same metal. It was entirely filled with a combustible substance, which did not appear to have diminished, although the probability is the combustion has been going on for ages. This discovery will, we trust, throw some light on a question which has caused so many disputes among learned antiquaries, although it is stated that one was discovered at Viterbo, in 1850, from which, however, no fresh information was afforded on the subject.

SHORT-HORN COW "DUCHESS."

Winner of the First Prize at the New York State Show, at Elmira, 1855.

The above cut represents a very fine animal, belonging to the herd of S. P. Chapman, Esq., of Mount Pleasant Farm, Madison County, in the State of New York. More than once we have had occasion to refer to Mr. Chapman's stock, as evincing correct judgment in the selection and breeding—several of his animals having, within the last two or three years, been purchased by Canadians, and having proved highly satisfactory. We learn from our excellent contemporary, *The Country Gentleman*, that Mr. Chapman has some score of young bulls and heifers for sale; and among them the well-known bull HALTON, formerly owned by the Hon. Adam Fergusson. Subjoined are the pedigrees of *Duchess*, and her sire, the *Duke of Wellington;* from which it appears that Mr. Chapman's herd contains the best and purest blood to be found among the different families of short-horns in the mother country. The name of the late lamented Bates, of Kirklevington, is of itself a guarantee.

DUCHESS, white, calved June 25th, 1849; bred by and the property of S. P. Chapman, Mount Pleasant Farm, Clockville, Madison County, N.Y. Got by Duke of Wellington (3654); dam (Matilda) by White Jacket (5547); gr. d. (Hart) bred by and imported into America by the late Thomas Hollis, formerly of Blythe, England.—See *American Herd Book*, vol. i. page 201.

DUKE OF WELLINGTON, roan, bred by Thomas Bates, Kirklevington, Yorkshire, England; imported by George Vail, Troy, N.Y. Got by Short Tail (2621); dam (Oxford) by Duke of Cleveland (1937); g d. (Matchem Cow) by Matchem (2281); gr. g. d. by Young Wynyard (2859.)

HORSE POWER.—The power of a horse is understood to be that which will elevate a weight of 33,000 pounds the height of one foot in a minute of time, equal to about 90 pounds at the rate of four miles an hour.

ABSURDITIES OF THE PRESENT CLASSIFICATION OF HORSES AT AGRICULTURAL EXHIBITIONS.

To the Editor of the Agriculturist.

SIR,—You may remember a conversation I had with you, at the late Fair at Kingston, as to the absurdity of the present system of classifying horses entered for premiums, under two heads only, viz., "Blood Horses" and "Agricultural Horses." You concurred with me as to the obvious defect of such a system, and promised to call attention to the subject in your excellent journal. I suppose you have deemed it better to defer the matter until the season approaches for making up the premium lists for the Fall Exhibitions; but as the same objection may be urged against the premium lists at our Spring Fairs, I enclose an extract from an American paper on this point, which meets my views exactly. Perhaps you will think it worth a place in the *Agriculturist.*

Yours sincerely,

Nelson, December 6th, 1856. J. H. W.

"There appears to be, according to the prevailing system, but two classes of *breeding horses*, in one or the other of which all animals must be entered, viz., "Thorough-breds" *i.e.* horses with a pedigree traceable to the English Stud Book, and "Horses of all work." Consequently, any person entering a horse other than a thorough-bred, must place him under the head of "All work."

"Now this "all work" covers a great deal too much ground, as it is *impossible* to find in *perfection* all the requisite qualifications for the various uses of the horse, combined in any one animal. In short, we cannot expect to find the *perfection* of the draught-horse and the race-horse in the same individual. Neither would a person of any experience in breeding, expect a stallion or mare of *superior excellence* for producing horses for heavy draught, to excel in speed; and *vice versa.* The attainment of the one quality, necessarily involves the sacrifice, to some extent, of the other. Yet these animals are obliged to contend together.

"The class should be divided as follows:—1st. *Roadster, Stallions and Mares.* Under this head, those horses should be entered in whom the qualities of speed and endurance are pre-eminent, and to whom we should look for producing those animals most in demand for the road, light carriage, saddle, and pleasure riding.

"2nd. *Stallions and Mares for Agricultural purposes.* The qualities to be sought for in the animals entered in this class, should be such as would be desired by the farmer for the plough, the market-waggon, &c. In short, horses of medium speed, size, and strength. Animals of this description would be suitable for the omnibus, horse railroad, express waggon, and similar purposes.

"Lastly. *Stallions and Mares for heavy draught.* These animals should be judged of as to their capability for producing horses fit for the drays and heavy waggons, and teams about the cities.

"These classes would comprise all that would be necessary, aud at the same time time render the duties of the committees more simple, and more satisfactory to competitors.

"I hope that before another season, the attention of those having the matter in charge may be drawn to the subject, and that premiums will be offered in a manner better calculated to improve our breed of horses."

REMARKS.—We commend the above to the consideration of those who are charged with the duty of framing premium lists for Agricultural Shows, and especially for the Provincial Show. There can be no doubt the classification of all the horses that may offer for competition, under two general heads, is improper. Each horse entered should be allowed to compete with those of its own class, *and none others.* The class should be determined from a consideration of the purposes, or

uses, for which the particular description of horse is adapted. "Blood horses" appear to be a small class in this country. At the last Provincial Exhibition there were but eight entries of blood horses, against 226 "Agricultural!" In our opinion, their usefulness, as compared with the other classes, may be set down at about the same proportion. But, for breeding purposes, it may be desirable to encourage the importation of thorough-bred stallions. The class should not, therefore, be dropped, especially at our Provincial Shows.

The absurdity of entering all other horses, of whatever size or conformation, under the head of "Agricultural Horses," must be obvious to any one who has ever attended an exhibition. An attempt is made to distinguish between "Heavy Draught" and "Agricultural purposes," but this is only a sub-division, and the Judges must themselves select those entitled to the prizes from the whole number entered. Much labour, and sometimes disagreeable duties, are thus imposed upon the Judges. We observe that prizes are given at the New York State Exhibitions for "Horses of all work,"—stallions and mares in separate divisions; "Draught," "Thorough-bred,"—different ages, from four years and upwards to one year; "Matched horses,"—three divisions, 16 hands and upwards, 15 to 16 hands, and 14 to 15 hands; "Matched trotting horses," "Geldings," "Single mares," and "Single trotting horses."

The Provincial Prize List is much less specific as to classes, and has no place for *trotting* horses. If the offer for prizes in this class would be likely to convert our "horse-ring" into a race-course, as it has done in several of the States, we should hope to see its exclusion continued. But a class of "roadsters" might be very properly added to our lists, in which good action as a trotter would be a high recommendation.

We hope the list of premiums for our next Show, which comes off at Brantford, will include the class mentioned as distinct from all others; and that instead of subdivisions, the "Heavy Draught" and the "Agricultural" may be distinct classes also, and that competitors will be compelled to choose the class in which they will exhibit.

Horses and Carrots.—A correspondent of an *American Journal*, gives his experience in feeding carrots to horses as follows:—"For two months past I have fed my two horses upon carrots and hay. My horses are in constant service on the road; and under this treatment they usually come out at the end of the "pile" looking better than when they commenced. My dose is two quarts morning and noon, at night four, to each horse; they have as much good, sweet hay as they will eat, and cut, whether fed to them dry or otherwise. This latter I have always practiced ever since I have had the management of horses; and I am satisfied that it is the cheapest and best way in which it can be given to the horse. There is no waste, and horses eat it better, and have more time to rest, which is quite an important consideration, where the horse is liable to be taken from the stable at any moment. I am satisfied there is no better way of feeding horses, nor is there any cheaper one—that I have ever tried--than the one mentioned. If there is, will not some one who knows, please report? I always cut them quite fine before using.—Carrots are most excellent for horses whose wind is any way affected—such as the heaves, &c. Those who have tried them for this purpose will, I think, agree with me in this; if not, just try the experiment and be satisfied. They are unusually cheap, compared with other articles of food of equal nutritiousness. Last year I paid nine dollars per ton, this year eleven, and at the latter price I prefer them to oats—measure for measure.

THE DIOSCOREA BATATAS,

AS CULTIVATED BY MURPHY & LYONS, OF SIMCOE, C. W.

Now, that the "summer is past and the harvest is ended," it is pleasant and profitable to compare notes, and report progress. To nothing will this remark apply more appropriately than to the new *Chinese* potato of which we have heard from so many sources, and about which so many conflicting statements have been made.

Being the first to introduce this new esculent into this Province, and having cultivated it somewhat extensively, and feeling interested in its success, we propose to give the history of our experience in its growth during the past season,—hoping soon to hear from others who have also given attention to it. The Dioscorea Batatas, your readers will remember, is a native of the eastern portion of Asia, and belongs to the order of Dioscoreaceæ, represented in this country by the Dioscorea Sillosa, or "wild yam root." The D— Sativa and other species produce yams, which are very important in tropical climates, but it is somewhat remarkable that several of the genera of the order above mentioned possess very acrid properties, which in some species render them poisonous. Thus the large fleshy tubers of the Tamus Communis have been employed as stimulating plasters, while the Dioscorea Triphylla and Dæmona, when boiled, exhibit dreadfully nauseous properties. The history of the new species, the subject of the present article, dates no further back, in our annals, than 1850. In this year, the French Consul at Shanghai sent tubers of the plant to France for the purpose of testing its value in that country. Not, however, till three years after was special attention called to it, and experiments commenced to prove its hardiness and productiveness. From this time it seems steadily to have advanced in public favor in France and England, and lately the United States and Canada have been added to the list of those countries in which its cultivation has been attempted.

The plant is trailing in its habits, with annual stems and perennial roots. Several of these stems frequently arise from the same root, and, if left undisturbed, entwine themselves firmly around each other. The leaves are deep green, glossy, and borne upon petioles or foot-stalks of a violet color and channeled. They are of nearly equal length and breadth, being cordate, or heart-shaped, and veined.

The root is peculiar in growing perpendicularly into the ground, with its largest end below, in being thickly studded with rootlets, and in the pearly whiteness of its interior, which possesses very little flavor, and is free from fibrous tissue. In size it varies from 15 to 22 inches in length, its lower end attaining a maximum diameter of two inches, and gradually lessening towards the other end. Writers speak of its extending into the soil to the depth of three feet, but this we suppose occurs only in exceptionable cases, and in permeable land. The plant is said to be most extensively cultivated in every part of China, and to constitute, in some instances, the principal food of the inhabitants.

The advantages claimed for the Dioscorea by its friends are:—It is more valuable as food, is more productive, and less liable to disease than the common potato. The root may be kept either in or out of the ground for a long period uninjured, and may even be ground into flour. The plant is hardy, and may profitably be left growing for two or more years. It possesses little foliage, and may be cultivated in close rows. The objections to the culture of this new esculent are obvious. The ground must be very deeply cultivated, and the harvesting may sometimes prove troublesome. To these some persons would add a third, having reference to its being unable to flourish in such a climate as ours. Our experience, however, leads us to regard the yam as hardy,—equalling in this respect many of the field crops of this country. The same frost that cut down corn and

potatoes to the very ground, was the first to affect it in the least. Up to this time it showed no signs of being affected by cold sufficient to kill melon vines; and when the tubers were taken up, upon the 7th of November, they seemed, from the appearance of the rootlets, to be in a state of vigorous growth. Add to this, also, that a few were left in the ground during the intense cold of last winter, in the nursery of Wm. R. Prince, of Flushing, and were taken up uninjured in the spring, and we can hardly deny to the plant the credit of hardiness.

Referring to the first of the above objections, we naturally speak of the soil most suitable for this new yam. Experience this year has shown, without doubt, we think, that a warm, dry, sandy loam is by far the most profitable for its cultivation. Even poor soils seem to be able to compete quite successfully with the richer. Our tubers were planted last year in three separate localities, and in four different varieties of soil. The first was a poor beachy sand; the second, a sandy loam, light, warm, and dry; the third, also, a sandy loam, but rich and damp; the fourth, a still heavier loam, with clay sub-soil, newly cleared, and somewhat shaded by a forest hickory. The sandy loams were trenched to the depth of 2½ to 3 feet, with the exception of the last, which, as an experiment, was cultivated to the depth of 15 inches only. Upon the 16th of April, the tubers were placed in small, well-drained pots, and these plunged into the earth of the hot-bed. Upon the 9th June, they were planted out in the open ground, and afterwards received ordinary attention in hoeing and watering. A few (foreign tubers) were started with difficulty, and were not transplanted till later. We began to harvest those growing upon the second variety of soil above mentioned, and were certainly gratified upon finding their size fully equalling what we expected. Extending our observations, however, to the richer and damper land in the vicinity, we found the roots not so large, when we expected to see them larger. So also in the poor soil, No. 1, the product was quite as great as in the last instance, and this with less care and labor. Upon the new sandy loam, the roots were very small.

Our readers will notice, from the above report, that in the very soil most adapted, in a dry, warm summer like the past, to most root crops the Dioscorea did not succeed so well as in the adjacent warm and dry spot; and that in the shaded and shallow cultivated land it succeeded worst of all. In a letter from Wm. R. Prince, of Flushing, who is by far the most extensive cultivator of the yam upon the continent, he says that the only kind of soil unsuited to the root is a "rich and moist one;" and it will be seen that this is in accordance with the facts above mentioned. There is, therefore, a two-fold reason why we should prefer sandy land for the culture of this root;—this character of soil is warm, and more suited to the habits of the plant, and, being permeable, is more easily worked to the requisite depth. It seems strange, and we can hardly believe it, that a plant bearing so little foliage as the *Chinese* potato should succeed in poor soils; and yet we know the cranberry, with the same characteristic, flourishes and bears large crops of fruit on the salt marshes near Cape Cod. Can it be, that the subsoil furnishes food for vegetables of this class, which energetically push their roots far into the soil beyond the reach of other plants?

In the U. S. Patent Office Report, vol. iii., for 1854, is a very interesting article upon this new yam, from the pen of D. J. Browne, Esq., and upon page 172 is the following paragraph:—"It is even thought that its cultivation in large pots, buried under ground, might be successfully adopted in some cases, particularly where the soil is of a permeable nature, which will allow it to extend its roots to a depth of more than a yard." This, we believe, will never be realized. Potting we found to be a decided injury to the plant, and will be tried next year only as an experiment. It seems to grow well in the open

ground only, unconfined, and free to throw out its rootlets in every direction. Had we transplanted our tubers some time earlier, regardless of the weather of a most unusually backward season, we would have secured, we think, a much more satisfactory result. Time, that cools the enthusiasm of the over sanguine, and softens the asperity of a too rigorous judgment, will undoubtedly add much to our knowledge of this new esculent. So far, the most reliable accounts are in its favor, and the forthcoming Patent Office Report thus gives us the summing up of Mr. Browne:—"Considering its property of persisting in the ground for several years without deterioration, being in readiness for the kitchen at all times, and all seasons, after the first year's growth, it cannot fail to prove an excellent substitute for the sweet and common potato in all localities where it will thrive."

Raising Lopped Horns.—A short time ago a correspondent inquired if there was any known method of raising lopped horns. We accidentally came upon the following communication in the *Albauy Cultivator* for 1852. The writer says: "The horns of steers can be raised without the least damage to their growth, (the most convenient time to do it is when they are kept in the stable) by taking two small pulleys; place one of them directly over the front edgde of the manger, high enough to be out of the way of the horns—the other at any place you wish, so that the weight will hang out of the way; pass a cord through them with a loop at one end, to slip over a button on the end of the horn; at the other end attach a weight of from two to four pounds. This should be put on every night when the steers are in the stable, and taken off in the morning when turned out. I have never known this operation, when faithfully performed, to fail of raising one or both of the horns to any desired position, in from two to six weeks time. Our success has been such that we consider the lopping of one or both of the horns no serious objection, provided they are otherwise in good shape."

AE GUDE TURN DESERVES ANITHER.

BY JAMES BALLANTINE.

Ye maunna be proud, although ye be great,
The puirest bodie is still your brither;
The king may come in the cadger's gate;
Ae gude turn deserves anither.

The hale o' us rise frae the same cauld clay,
Ae hour we bloom, ae hour we wither;
Let ilk ither to climb the brae;
Ae gude turn deserves anither.

The highest among us are unco wee,
Frae Heaven we get a' gifts the gither;
Hoard na, man, what ye get sae free;
Ae gude turn deserves anither.

Life is a weary journey along,
Blythe's the road when we wend wi'ither;
Mutual gi'ing is mutual gain;
Ae gude turn deserves anither.

Chinese Sugar Cane.—A correspondent ef the Southern Farmer gives his opinion of this plant as follows:

Last spring a friend gave me a few grains of the end of this cane—enough to plant some twenty or twenty-five hills, which he had received from the Patent office. I placed no value upon it, but planted it simply because it was new, and I was anxious to see its growth. It was planted in a poor border in my garden, and its cultivation was at first almost entirely neglected· It however came up well, grew off vigorously, and suckered freely. I thought upon observing its growth, that it might be made valuable as an article for soiling cattle, and therefore late in the season gave it one good working, and kept it free from grass. I saved about three quarts of seed, and about this time I met with some articles stating its abundant supply of saccharine matter. I concluded to give my hogs a taste of it, and was surprised to find the avidity with which they chewed up every portion of the stalk, leaving other green food, such as sweet potato vines and late green corn, too late to mature for roasting ears, and therefore in its prime for this purpose, and selecting these bare stalks in preference.

So satisfied am I of its value for this purpose, that I intend planting the seed I have saved on good land next year, and giving it the usual culture of Indian corn, if for no other purpose to feed my hogs; and I believe it will pay well—for the stalk is so solid that I do not doubt it may be kept for many weeks without becoming too dry for this use.

Apple Pomace.—We are often asked whether this is of any worth for the land, and if so, how it can be used. The value cannot be great, especially since the new way of making cider without straw. But if composted with lime, it would in no very great length of time crumble down into a black mould, in which state it might be worth something—a little more, perhaps, than the cost of the lime; and what would otherwise be a lasting nuisance would be got rid of. It would be well first to let the pigs root among it, and eat the seeds and other parts, as they would. If composted with lime, it should hardly be permitted to lie where the family would breath the fumes arising from it.—*Plough, Loom and Anvil.*

EDITOR'S TABLE.

Agricultural Societies.—We send a few specimen copies of this number to the officers of all County and Township Societies, whose names we have been able to obtain, in the hope that they will submit them for inspection at the annual meeting, and urge the necessity of supplying each memb er with a copy. By employing an active person to canvass the Township for subscribers to the Society, *and offering the paper as a bonus*, they will in most cases obtain more money, and will certainly excite more interest in the doings of the Society than by any other plan. Try it, and see!

Our Prizes.—The prizes announced for competition are open to *all Canada.* We have no special agents this year. Look at the terms, and set to work! We want at least 10,000 new subscribers; and have resolved that no person *who will work* for the attainment of this object, shall lose by his efforts.

Improved Farming and Stock in Canada.—We have received from W. H. Sotham, Esq., the celebrated importer and breeder of Hereford Cattle, in the United States, an interestlng account of his visit to Canada, lately, and especially of his examination of the herd of short-horns, imported and bred by the Messrs. Miller, of Markham and Pickering. He says he never "put his hand" upon a better selection of first-class animals. Mr. S. gives the "novice breeders" and the "agricultural press" some hard knocks for puffing third-rate animals; but we shall not regard his blows as aimed at us specially, and shall, therefore, publish his remarks in the February number. It came too late for insertion in this.

Toronto Agricultural and Horticultural Club.—The first winter meeting of this Club was held in the Court-House, on the 22nd December. Mr. Charnock read a paper on "Fire-side Farming." It was entirely too lengthy for insertion in our columns. The number of members present was not large. The next meeting will be held on the 8th inst., at the same place. Professor Buckland will open the discussion.

CONTENTS.

THE

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DISCUSSIONS ON FRUIT GROWING.

Western New York is, in soil and climate, similar to Western Canada. Most fruits that ripen there, may be grown to advantage in Canada. The Fruit–Growers' Association of Western New York, — why have we not such an association in Canada? — holds frequent meetings for discussing matters pertaining to their business. Much useful information as to best varieties of fruit trees; mode of culture; profits, &c., result from these discussions; and the unprofessional, or amateur fruit-grower, may thereby learn what to choose, what to avoid, and what to *do* after he has made his selections at the nursery. As an example worthy of imitation here, as well as on account of the information it communicates, we give a brief report of the remarks made at the last meeting of the Fruit Growers' Association of Western New York, held at Rochester on the 7th January. We are indebted to the Rochester *New Yorker*, for this report.

"A committee having been appointed to propose subjects for discussion, made a report of the following questions, which were discussed in the order reported, except No. 5, which was passed by for want of time.

1. Small Fruits.—Can any of them be grown on an extensive scale, profitably?
2. Shelter for Orchards and Fruit Gardens.—Is it important, and if so, what trees or shrubs are most suitable; and what the best method of planting to accomplish the object?
3. Hardy Grapes.—Can their culture in the open air be made profitable?
4. Is it better to Top Graft old apple trees than to plant new ones?
5. Is it a good practice to renew Peach Trees by heading them down.
6. Can Winter Pears be grown profitably?

1. Small Fruits.—Several members of the Convention thought the Currant might be grown extensively, both for sale, and for making wine.

Mr. Barry being called upon to state some of the best varieties, recommended the *Cherry Currant*, the *White Grape* and the *Victoria*, the two latter excellent bearers, the *Cherry Currant*, not quite so good, though very fair, and the *Victoria* valuable on account of its lateness.

Mr. Warren, of Genesee Co., found the *Cherry Currant* very productive, more so than any other variety.

At this stage of the discussion, Mr. Ellwanger presented to the Convention several bottles of *White Currant Wine*, made from the *White Grape Currant*. It was tasted by the members, and pronounced excellent. The flavor was fine, but as this wine was made the last summer, it of course needed age to be fairly tested.

Dr. Moses Long found the *Black Currant* to make the best wine, as good as *Port wine*,

and very much resembling it, and exceedingly valuable for medical purposes. The Doctor strongly recommended the growth and use of the *Black Currant*

Mr. Barry had been informed that all the *Black Currants* grown in the vicinity of New York, had been bought up by the wine dealers in that city, for the purpose of making Port wine. If this is so, the wine makers must be getting more conscientious, and it will undoubtedly have an effect upon the price of logwood.

The Raspberry was recommended by Mr. Burtis and others as worthy of extensive cultivation;

Mr. H. E. Hooker said the fruit growers in the neighborhood of Cincinnati had cultivated the *Black Raspberry* for market. It would bear shipment without injury. The *Antwerp* and other varieties would spoil in twelve hours after picking.

Col. Hodge, of Buffalo, had found the common *Black Raspberry*, or *Black Cap*, as it is generally called, the most hardy, and take it altogether, the best for general cultivation. The *Antwerps* were tender unless grown among trees, which would afford sufficient protection. Covering the plants in the fall was troublesome and expensive. The *Allen* is a variety much grown around Buffalo, and is a native of Ohio. It is of a reddish black, and a superior fruit.

Mr. Barry said the growing of the *Antwerps* and other good varieties is profitable near large cities. The *Red Antwerp* is the variety grown so extensively on the Hudson river, for the New York market. His practice was, in the fall, to bend the tops down and throw a spade full of earth over them. The snow soon covers them. The Antwerps are far superior in flavor to the native varieties mentioned—so in the Orange, and other varieties that might be named—they are the Raspberry in perfection. The Red Antwerp is hardy in the gardens about this city, requiring no protection.

Mr. H. E. Hooker observed that the Black Raspberry would usually sell higher than other varieties, being much sought after for preserving. The foreign varieties repened very fast, and in a few hours were over-ripe, so that they required to be watched, or a portion of the crop was destroyed. This was not so with the Black. It would keep in good condition several days.

Mr. A. Stone, of Oswego, thought it worthy of notice that the Black Raspberry was not attacked by worms when ripe like other varieties.

Mr. Barry considered this a bad sign, as insects were good judges of fruit.

If the people want Black Raspberry, and are willing to pay more for them than for a better sort, so as to make their growth more profitable, of course fruit growers would do well to raise them. But, when all the pains necessary to grow better kinds is a slight protection in winter, in exposed localities, no one should allow the trouble to frighten them from their culture. This would be *progress* in the wrong direction. The *Black* Raspberry is too woody for our fancy. If we were obliged to eat a certain amount of wood, we should prefer to have it separate from the fruit.

Gooseberries.—Mr. H. E. Hooker thought Gooseberries a very profitable crop for market, if they could be grown free from mildew. Had raised some for market which he sold at 18 cents per quart, and considered it a ridiculous high price.

Mr. Geo. Ellwanger had found that the *Crown Bob*, *White Smith*, and other strong growing varities, were not apt to mildew.

Mr. Hooker on light soils never got a good berry, even with thorough mulching. Had no trouble in growing Gooseberries free from mildew on a heavy soil. Houghton's Seedling had never mildewed with him.

Mr. Ellwanger had never known Houghton's Seedling to mildew, even on the lightest soil.

Mr. Benj. Hodge cultivated twenty varieties.—Found that after two or three years the mildew entirely destroyed them. Does better in a heavy soil, but even then mildews. Heavy pruning and a stiff soil is the best preventives. Never recollected seeing mildew on Houghton's Seedling.

Mr. Barry said the Gooseberry required a cool, moist soil. In Lower Canada, Maine, and in the northern part of this State it succeeded almost as well as in the cool, moist climate of England.

Mr. Warren, of Gen. Co., had raised the Gooseberries without trouble from mildew, in a light soil, on the north side of a board fence.

2. Shelter.—Benj. Hodge thought this subject very important. Shelter was essential to the growth of fruit in many localities. Peaches could not be raised at Buffalo—not on account of severe frosts, as many thought, but because of the cold, bleak winds. At the

lower end of Grand Island is a tract of land called Peach Haven. It is protected from the west winds by a natural forest. There the peach succeeds well. Would advise the planting of the *Norway Spruce;* it grows quick and will afford good shelter.

Mr. H. E. Hooker said many fruit growers thought the principal injury to the peach was from the cold north-easterly winds in the spring, just after blossoming.

Mr. L. Burtis, of Rochester, would prefer the coldest, bleakest hill for a peach orchard, so that the ground would freeze deep, and thus keep the trees back in the spring.

Mr. Benj. Fish, of Rochester, found by experience that when the peach crop failed it was in almost every case in consequence of extreme cold in winter.

Dr. Roach, of Ontario Co., has two peach orchards of about 200 trees each. One is exposed to the west wind, and the other pretty well sheltered. From the exposed orchard he gathered about a peck of peaches last season, and from the other 150 baskets.

Mr. Barry had no doubt but exposure to the west winds was very injurious. The winter before last the west sides of hemlock trees, standing in the natural forest, were injured by the cold of the winter, as were the west side of Privet hedges, and other hardy plants, plainly showing the evil effects of continued cold blasts from the west.—Pear plantations that were exposed bore but little. Mr. Barry agreed with Mr. Hodge that the Norway Spruce should be recommended as a suitable tree to plant for sheltering orchards. For small gardens the *Arbor Vitæ* would be suitable.

Mr. H. N. Langworthy had cultivated the peach for twenty-five years somewhat as a profession—He found that both the east and west winds destroyed a good deal of fruit. As a general rule the rows of trees on the east and west ends of the orchards bear but little, while those in the other parts of the orchard bear well.

Of the value of *shelter* for the orchard there can be but one opinion. Those who have travelled over the Western prairies, and noticed the effects of the tremendous winds that prevail there on fruit trees, must *feel* the importance of shelter. Were we to plant an orchard on the prairies, we would almost surround it with a belt of Norways.

3. Hardy Grapes.—H. N. Langworthy would like to have gentlemen talk freely about the best method of cultivating the Grape. The finest grapes, he often observed, were those that were grown on part of vines that had run up among the branches of some neighboring apple, or other tree, where they seemed to fully ripen in the shade.—From this he argued that the sun was not necessary to ripen the grape—it seemed to require warm air.

Mr. Hodge hardly thought the Isabella grape would ripen well in the neighborhood of Rochester, in ordinary seasons.

Mr. Barry thought with proper culture the Isabella grape could be ripened in Rochester almost every season. He referred to the beautiful, well-ripened Isabellas raised by Mr. McKay, of Naples, Ontario Co., and called upon Mr. Johnson, who resided in the neighborhood of Mr. McKay, to give the meeting some information as to his mode of culture, profits, &c.

Mr. Johnson had been somewhat interested with Mr. McKay in the culture of the grape. He pruned very close every season, and trained his vines on wire trellises some seven feet high. The lower branches were trained very near the ground. The vines were one rod apart each way, making one hundred and sixty to the acre. He thoroughly manured. The fruit ripened every season perfectly. The soil is gravelly, with a clay sub-soil, and a north-eastern exposure. The product is about $1,200 per acre. Mostly sold at 15 cents per lb.

Mr. Flower of Syracuse, stated that a gentleman near Syracuse had sold $800 worth of grapes from half an acre.

Mr. Hodge was acquainted with Mr. McKay's Grapes. They are ripe Grapes—a beautiful black. Not one quarter of the people of Buffalo ever saw a ripe Isabella Grape.

Mr. Ainsworth, of Bloomfield, was acquainted with Mr. McKay's Grapes. He has a favourable situation. He prunes very thoroughly both in the winter and summer, and thus the shade is lessened, and the fruit exposed to the light and air. Cultivated the Grape pretty largely himself, and with entire success. Got a fair crop the third year after planting. At present prices the cultivator can depend upon from $500 to $800 per acre profit

Mr. Barry thought that this discussion must have convinced all that the Isabella Grape will ripen here every season; and that the raising of hardy Grapes is not only profitable, but exceedingly so.

4. Grafting old Apple Trees.—Mr. Hodge said if trees were healthy and vigourous, it would be wise to graft; if old and sickly, it would be much better to cut them down,

and plant out young trees. Some years since a gentleman in his neighbourhood wished him to send men to graft an old orchard on his place. Mr. H. advised him to cut down his old trees and plant a young orchard. He found some itinerant grafters that did the work. In three years he was so sick of the operation that he cut the whole down, and planted young trees. If the ground is well prepared by thorough deep plowing and manuring, and the trees well cultivated, young trees will bear so early as to astonish those who plant. In 1848, he furnished a gentleman with one hundred apple trees. From these trees in the fall of 1854 was picked 120 barrels of apples. They were mostly Baldwins and Greenings. Two Baldwin trees bore three barrels each.

Mr. Barber, of Ontario county, had considerable experience in grafting old orchards. He did not graft in the tops of trees, but cut off large limbs six or ten inches in diameter, or more, as the case may be. Then put in good strong scions, of some quick growing varieties, all around the limb, as thick as they can set,—about an inch apart. This must be done very early, before the sap starts. These scions grow and form a lip all around the limb of the tree, and the more feeble of these scions can be cut away. Trees treated in this way had produced three barrels the third year. Had grafted apple trees in this manner that had been broken off, leaving nothing but a stump, and pear trees that had lost the entire head by blight, and never failed to get a good top. If the grafting was done early a lot of shoots would soon appear, and furnish leaves enough to elaborate the sap.

Mr. H. E. Hooker had pursued a similar method with Pear trees that had been destroyed with blight, and with success. Also, with apple trees in a few cases.—The wood of the large limb became discolored, and showed signs of decay.

Benj. Fish thought there was no general rule for grafting old trees. If a tree had been well pruned, and well cared for, it would be grafted with success; but as farmers generally treat their trees, pruning them with an axe, they became diseased, and when a large limb of such a tree is grafted the wood decays, and the tree becomes hollow and worthless.

T. C. Maxwell said there were a number of old apple trees near Geneva, planted in the olden time, by the Indians. As the story goes, these trees were cut down by General Sullivan, on his expedition to drive the Indians from this section of the country. They show signs of having been cut down, as many of them have two trunks. These trees were grafted fifteen years since, and are now profitable trees.

Mr. Ainsworth could not approve the system pursued by Mr. Barber. The large limbs cut off for grafting would soon decay. The scions, set so thick around the limb or trunk, would form a cup where the water would remain; the wood would rot, and the tree be destroyed. Three barrels of apples from a tree the third year after grafting, he thought a pretty tough story. Always found that after a few years the fruit of a grafted tree depreciated, and the tree itself soon decayed.

Mr. Barry thought Mr. Barber showed some knowledge of Vegetable Physiology in his remarks. He was opposed, however, to grafting old trees, when in a state of decline, except in special cases—as when a person takes possession of a farm destitute of good fruit, with a few old apple trees growing. In such a case it would be well to graft, so as to have fruit enough for family use as soon as possible.

6. Winter Pears.—Mr. R. Robinson Scott, hoped that when gentlemen made statements in regard to *Pears;* their product, value, &c., they would let it be known whether such statements were *real* or *imaginary*, as an old Horticultural journal charged the members with making false statements at the last meeting. It would be well, therefore, for members who make statements to let it be understood whether they were *real* or *figurative*.

Mr. Barry said that the growing of *Winter Pears* was yet a new business. Winter Pears could be grown as easily as fall Pears—the only difference is the trouble of keeping the winter pears until they ripen. Most of the winter varieties will keep and ripen in barrels in the cellar, as well as apples. He had been surprised to find how little care and trouble they required. The *Easter Buerre*, *Lawrence*, and *Vicar of Winkfield* may be grown and ripened here as easily as Baldwin apples.

At this stage of the meeting Mr. Barry presented to the Convention a fine dish of *Easter Buerre Pears*, kept in a barrel in the cellar until taken out to bring to the meeting. They were tasted by members generally; and as a fine one fell to our lot, we were so much absorbed in discussing this particular pear on our own account, that we undoubtly lost many valuable remarks that should have been noted down. When we awoke to a sense of duty, Mr. Hodge was observing that in selecting pears for market culture it was

important not only to get pears of good quality, but those that bear large crops. As to making pear culture pay, there could be no question about that. A pear tree in Mr, H.'s vicinity, bore 40 bushels last season, and another belonging to his brother bore 20 bushels, which were sold at $2 per bushel. This was an inferior variety.

Mr. Hooker found Winter Pears quite variable as to quality. Had no trouble in ripening them—the trouble was to grow them good. If well grown they would ripen well.

Mr. Barry observed that trees of Winter pears did not bear fine fruit until they attained some ago. The *Glout Morceau* did not bear fine fruit, even on the quince, until eight or ten years old.—Winter Pears must be well grown. Imperfect, poor speci mens will never ripen.

A Famous American Horse.—We learn from the *Country Gentleman*, that Black Hawk a celebrated horse to whom the whole race of Morgan horses are greatly indebted for their notoriety, died at the stable of his owner, David Hill, in Bridport. Vt., on the 1st of Dec., at the age of 23 years, Black Hawk was sired by Sherman Morgan, and he by the original Justin Morgan horse. He was foaled the property of Ezekiel Twombly in Durham, N. H., in 1833. By the death of Mr, T. he "passed into the hands of his nephew, by whom he was sold, when four years old, to A. R. Mathes, who sold him to Brown & Thurston, then of Haverhill, Mass. Mr. Thurston, (Benj. Thurston, now of Lowell) subsequently became his sole owner, and in 1844 sold him to Mr. Hill, by whom he has since been kept till the time of his death." The Spirit of the Times says ;—

Black Hawk was a little less than 15 hands high, and weighed about 1000 pounds. His color was black, like that of his dam, and his colts have been black, bay, or chesnut, with hardly an exception. He possessed the character of the Morgan family of horses in an eminent degree. He was symmetrical, muscular, and compact in his form, and his elastic style of action, speed, and endurance, which qualities he imparted in a remarkable degree to his progeny, rendered him one of the most valuable stock horses ever owned in this country. Black Hawk could trot his single mile in 2:40, and exhibited considerable bottom in longer races. In 1842 he won a match for $1000, by trotting on the Cambridge Track five miles inside of sixteen minutes. Oct. 3, 1843, he won a race of two mile heats, beating two competitors easily in 5:43—5:48—5:47. Black Hawk was the sire of several of the fastest trotting horses on the turf, among which are Ethan Allan, the best trotting stallion in the world ; of Lancet, who has beaten the best time of Lady Suffolk ; of Black Ralph, Belle of Saratoga, Black Hawk Maid, &c. He was not only a fortune for his owner, but the value of his stock has added much to the wealth of the State where he was kept. Mr. Hill has received for his services over forty thousand dollars ; his last season netted seven thousand dollars, and he was already booked in advance for five thousand dollars. His owner obtained insurance on his life until he arrived at an age when the premium charged was necessarily very high and he died uninsured.

It has been aptly suggested, says the *Country Gentleman*, that "the skin of Black Hawk be preserved by some skilful taxidermist, in such a manner as to represent with the greatest practicable accuracy, the body it originally covered. We may add the hope that our State Ag. Society will in this case, procure it for permanent exhibition in our New Museum, where it could but be a matter of great interest to every visitor. For ourselves we should look at it with peculiar pleasure, as it was through our columns as above stated, that this celebrated horse first became more generally famous, and through them that his true history was originally elicited and published."

A Colt from a Mule.—Mr. John D. Pitts of San Marcos, Texas, writes the Spirit of the Times as follows :—"I have a mule that I raised, three years old in June last, that now has a colt by her side. Please say what I must call it. Its ears are not like the mule nor the horse. In other respects it resembles the mule. If any one disputes it, I have the mule and her colt in my lot ; the doubting Thomases can see for themselves."

One Advantage of Agricultural Societies.—In the course of the address which was delivered before the Penn. State Ag Society, at Pittsburg, by Hon. George H. Woodward, we find, here and there, some suggestions which seem well worthy of consideration, and well adapted to promote the interests of the agricultural fraternity at large. We propose to copy, or condense, a few of the more important of these suggestions for the benefit of our readers.

METEOROLOGY FOR FARMERS.

BY LIEUT. M. F. MAURY.

This is an interesting subject to all, and to Farmers one of great practical importance. We intend to treat it at some length, for we are very utilitarian in our notions. We shall aim first to show the advantages which should ensue from a properly conducted system of Meteorological Observations, not only to the Army and Navy —but to hygiene, to the great industrial pursuits of the country, to the public convenience, and to the advancement of science. Having done this we shall develop a very simple and economical plan for conducting these investigations, and thereby afford to the farmers—to whom we especially appeal, because they have the "deepest stake in the hedge"—an opportunity to lend us their countenance and support in getting these investigations under way. We do not ask them for money, but for good words and a friendly co-operation.

There are no political divisions in the atmosphere—and to understand its movements and the laws which govern them, we must overleap State lines in search of facts; we must study it as a whole, and observe its phenomena both by sea and land. The influence of Canada upon the weather is felt in New York, Pennsylvania, Ohio, and other States just as much as it is in the Gut of Canso. The great chain of the American lakes which contains more than one-third of all the fresh water that is found on the surface of our planet, impresses peculiar features upon the climatology of the lake States, and exerts a marked influence upon the meteorology of an extensive region of this country. Many of the storms of the Mississippi Valley feel the Meteorological force of the Gulf Stream, and show signs of its influence far away towards the Rocky Mountains. And could we trace the snow which now covers the fields of many of our readers with its protecting and fructifying mantle, to the place whence the thirsty winds sucked it up as vapor when last it was in the sea,—we should find, perhaps, that it came from regions far away in the Pacific Ocean, where it had been feeding the coralines with lime, which at a previous period, it had washed away from the monolithic caves of India, the silver mines of Potosi, or the white quarries of Carara marble.

The winds which brought this vapor from the sea, and deposited it as snow before our doors, did it in obediance to laws that are as fixed as those which regulate the seasons and bring about seed time and harvest—and, therefore, to understand the Meteorology of our own country and comprehend the laws which are expressed in its climates we must understand the movements of the great ærial ocean which envelops the earth, and to do this we must push our researches far away into distant lands and establish our observations on the sea as well as the land.

The sea is already thickly studded with floating observatories—and those who do business upon its great waters, are the unpaid volunteer co-operatives in this system of research which we now propose to extend to the land, and on account of which we appeal to the farmers for help of a like sort. We will explain how the co-operation of sea-faring people was obtained, and then it will be easy to show how we propose to obtain that of the agriculturists and landsmen generally.

The Superintendent of the National Observatory, being duly authorized, appealed to the ship masters and owners for co-operation, and invited all under the American flag to send to the Observatory, abstracts of their log books, showing for every day during the voyage, the latitude and longitude of the ship at sea, the direction and force of the winds, the strength and set of the currents, with the temperature of the air and water. and the height of the Barometer.

From these materials, thus obtained, the celebrated "Wind and Current Charts" were constructed. Thus the observations were made gratuitously, and the data furnished by individuals without cost, while the government undertook the expense of colaboration and publication. In acknowledgment of such service, and for encouragement, every Navigator who had contributed observations, was furnished gratuitously with blank forms for records and a copy of the work which the observations contributed by him, had helped to make.

By this simple and economical plan, the ocean in a little time, was dotted over with floating meteorological stations, from which sea and air were watched day and night, and the phenomena presented by them carefully observed and noted.

Among the immediate results of this undertaking, passages were shortened, the dangers of the sea were lessened, navigation was improved, commerce was benefited, and

remote corners of the earth lifted up as it were, and set down nearer to our own doors by many days' sail than they were before. The commercial distance *via.* Cape Horn to California was reduced from a voyage of upwards of six months on the average to one of a little over four months, and by a similar process the golden colony of Australia was placed just one month nearer to the ports of the mother country than it was before; the saving this effected to British commerce alone has been estimated in England to be worth to the merchants and people of that country not less than ten millions of dollars a year. Now mind, gentle, prudent, and cautious farmers, the sea captains and merchants to realize these gains did not have to incur any additional outlay—all the costs to them was in the pens and ink necessary for recording the observations they were requested to make. The instruments used were required for the proper navigation of the ship at any rate. And the necessary instruments for the observations now required to be made on land, are such as every good farmer ought to have also at any rate. Thus was commenced the first systematic attempt to study the Meteorology of the sea and to investigate by an extensive co-operation among mariners, the laws which govern the movements of sea and air.

Other maritime nations, foreseeing the benefits arising from this plan, signified a desire to take part in this system of research as co-laborers.—Accordingly the leading powers of Europe, sent their own chief hydrographers, being officers noted for their accomplishments in the walks of science, to meet the Superintendent of the Washington Observatory in conference, and to consult together as to the best plan of a general and uniform system of Meteorological Observatories at sea.

These officers met in Brussels about three years ago, and there devised a plan of physical research for the sea, which at their recommendation, has been adopted by sea-going people generally. The observations that are made on board English ships are sent to an office, that has been established in London for the purpose, where, at the expense of the crown, they are discussed and published for the benefit of the sea-faring world, as they are in Washington, and also in Holland, Denmark, Russia, and other countries.

This beautiful system of research, with its magnificient results which are estimated to be worth millions annually to the people of this country and their factors, is carried on under an annual appropriation by Congress of less than twenty thousand dollars.

Thus we have two-thirds of the surface of our planet already occupied by meteorological stations and we appeal to the farmers and to the lovers of science to help us to occupy the other third.—The Brussels conference advised that it should be so extended, and held that the laws whieh govern movements of the air can neither be thoroughly, studied nor understood until the land should also be included as part of the system.

There are in this country men enough—amateur meteorologists—already engaged in making, each for his own satisfaction, observations that would suffice for extending this system over the United States. All that remains to be done thus to extend it, is to organize these observers into a corps, so that they may co-operate and observe according to the same plan; and that they should be so organized and set to work, it is only necessary that the friends of the measure generally, and the farmers in particular, should so exert their influence, that Congress may give the Superintendent of the National Observatory authority for such extension of his researches, with the means of colaborating the observations to be procured, and of publishing for the benefit of the whole human family the results to be obtained therefrom—for, where is the man, woman or child, that is not concerned in the laws that govern this wonderful machinery, which we call the atmosphere.

We appeal to the farmers especially to use their influence to procure the requisite votes in Congress, because the benefits which agriculturists would secure from the plan, are paramount. The whole business of Agriculture is, to a certain extent, an affair of meteorology—of wet and dry, hot and cold, cloud and sunshine,—and the conveniance of the public is to be affected, and the business of the people in a great measure regulated and controlled, by the weather we shall have to-morrow. We cannot pretend to specify the results that the spreading out of this system of meteorological research over the land would give.

But it is obvious that our observers must cover the land as well as the sea, and that in order to study the operations of this atmospherical machine, and comprehend its movements, we must treat it as a whole.

Humboldt and Dove, Kriel, Quetelet, Kupffer, Jomard and Le Verrier, with a host of other lights of science in Europe, stand ready to co-operate with us in maturing

and inaugurating such extensions of our marine observations. Indeed, Europe is waiting for America to make the move in this matter. We may be permitted to make an extract bearing on the subject from a letter received by the writer, no longer ago than the beginning of the winter, from M. Quetelet—the Astronomer Royal of Belgium, the preceptor of Prince-Albert, and one of the most accomplished scientific men of the age.—Quetelet has done more for vegetable meteorology, perhaps, than any other man living; and, owing in no small degree to the scientific aid which he has rendered, and the skill which he has done so much to develop, Belgium is, perhaps, in a higher state of cultivation and agricultural improvement, than any other country in the world.

This letter is dated 10th Dec., 1856, and says:

"Happily, you are not of a character to hesitate, and you will do very wrong to abandon the enterprise of extending your meteorological system of research from sea to land, to England, to France, and to Russia. It is plainly necessary that it should proceed. This grand undertaking is entirely honorable, and your country should not lose the honor of having been the first to suggest it. There is a certain boldness and zeal necessary, which is better suited to a young country than to our old climates—nevertheless, we are not altogether to be disdained, and in many respects we may, by following, gain the palm. But real merit is in every age the same in individuals as in nations. In your proposition America has found a great idea, which should be altogether her own property, and should not be abandoned, because our continents wish to march in the same route but should be accomplished in a firm manner by herself. Our Europe is too contracted, and her governments too jealous of their respective influences, to allow one of the principal nations to take peace of the other. They all will aid voluntarily, when the appeal comes from without, and each can give an equal part without chance that any rival can attain an advantage over the other. Hold, then, firmly to your propositions—endeavour to overcome hesitancy in America, and thus she shall render an immense service to science, and nobly accomplish a career which she commenced. I say nothing, my dear friend, of yourself, because I know well that you regard always the general welfare and not your own. But listen to me; strive to obtain this last conquest. No one shall applaud more sincerely your success than myself, and I am also ready to second you with all the resources which I have. Age advances, difficulties augment, but we have as yet no cause to recede. Every year lost is a considerable loss. It was necessary to give way to the Russian war, but at present there are no such motives to excuse inaction.—It is necessary to make another effort, and fortune will reward us."

We shall continue this subject in our next article. We shall show its importance to the Army and Navy, that the Government and Legislators may, with a clear conscience, do their part towards the great object we have in view; and then we shall show the plan of observations and satisfy our readers that it is neither elaborate, complex or difficult. On the contrary the observations at the commencement are few and simple, and neither do they require any very great skill or amount of labor to make them. It should be begun in a very simple and plain way, and then, as its usefulness and importance are developed, it may be extended.—*R. New Yorker.*

Poultry need warm and comfortable quarters these cold nights, and you will find that there will be a saving of corn or a proportionate increase of fat, if they, chickens, turkeys and all, are made to come off from the apple trees, and roost in the poultry house.

Trapping Mice.—The number of mice may be very materially reduced by trapping them. The little wooden traps, with a spring yoke rising over a round hole in the side, can be bought very cheaply. They are retailed for about three cents each, when having but one hole, and for six cents with two holes. Two or three dollars will purchase a hundred of single hole traps. These baited with a bit of cheese, or cheese rind, and distributed around an orchard, will thin out the mice very rapidly. We have a lot of them about the dwelling, garden, &c., and find them more effectual, and less annoying, (especially of nights,) than cats.—*Am. Agriculturist.*

Duties of Cattle Judges.—A correspondent of the Ohio Farmer says:—Their duty to the Society and the public requires that they should accurately note down, and specify in their reports, the individual merits and de-merits of the competing animals, and clearly point out the points in which the preferred animal excells. You thus systemise and establish permanent rules governing your awards, which must give more general satisfaction to the public and breeders of fine stock.

SUGAR: ITS QUALITIES; AND WHICH IS THE CHEAPEST.

If cane sugar was the article intended by Hebrew *René* (translated *calamus* and *sweet cane*)—and this is at the least quite doubtful—then the oldest mention of this now common sweet is to be found in Exodus, thirtieth chapter, and twenty-third verse. But the first mention of sugar, relative to which there can be no question, is found in Herodotus, about B. C., 445. The Greeks called the article at first the *honey of canes, Indian salt*, and *saccharon* or sugar. The term "Indian salt" is noticeable. It seems, besides pointing to India as the original country of the cane, to show that sugar had been in a high degree clarified and crystalized even then; as it could not otherwise be compared to salt. Galen very gravely prescribes sugar as an internal remedy in some diseases! It was not known to Germany and Britain until the Crusades; nor was it considered a necessary of life until tea and coffee had come into general use.

The Arabs have the credit of first concentrating the juice of sugar by boiling. And the process of sugar-refining was communicated to the people of Europe, in 1503 by a Venetian—probably borrowed by him from the Chinese. The lovers of *candy* will be surprised to hear that, in the present sense of the word, it did not exist until more than a century after the discovery of America by Columbus! Our ancestors had not the privilege of killing time by mumbling *gum-drops, lozenges*, and *cream-sticks minus the cream;* but then they saved their teeth, temper, and stomachs for more substantial occasions.

There are may species of sugar—some of them obtained from a variety of sources. The most common—CANE-SUGAR—is found also in the beet, and some other roots; in the sap of the maple, walnut and birch; and in small quantity in grains. What is this sugar? Chemistry kindly steps in and informs us that it is made up, in its purest forms, of *twelve parts coal-dust, combined with eleven parts water*—nothing more, and nothing less! A great heat drives off the water, leaving the coal in a black mass.

GRAPE-SUGAR is that found in rasins, and of course in the juice of the grape, as well as in other fruits, and in honey. It is *coal-dust twelve parts, water twelve parts*, and is less sweet and crystalline than the former variety. Another form of sugar is found in the drug *manna;* a fourth in the *licorice* root; a fifth in *mushrooms;* a sixth in *animal muscle*, and so on.

The juice pressed from the sugar-cane is a solution of sugar in water, with various vegetable and mineral impurities, such as would naturally be found in the sap of plants. The process of manufacture has two objects: to get rid of the water not held in combination in the sugar itself; and to get rid of the impurities of the juice. It is seldom that either of these ends is attained on the sugar-plantations. Owing also to the speedy fermentation of the juice, if neglected, to too long and frequent exposure to the air, and to burning, much material which might afford an article of the first quality, is turned out deteriorated and greatly inferior; so that a writer has styled the common boiling process "an elaborate and effectual means of converting pure sugar into *molasses and scum.*"

It is generally known that *molasses* consists of the drainings from the sugar after it has undergone crystallisation. It necessarily contains a larger share of impure matters than any sugar; although many of the lower grades of the latter, as is easily seen, are still full of molasses, and are very far from being pure. The improved methods now adopted by some of the planters, both secure a larger percentage of sugar from the juice, and that of a better quality. The following is a good rule for judging of the grade and value of the article as it is imported, that is, of *raw or muscovado sugar;* namely, "The more coarsely granular, the harder, drier, and whiter, the greater the value of the sugar." Of all the grades the white Havana is best, being almost as pure as that which has been refined.

In refining, the sugar is re-dissolved, purified by filtering through bones burned and crushed, then again concentrated, but by means of a "vacuum apparatus," and therefore at a low degree of heat. The syrup is then poured into moulds, crystallises, is drained (the drainings furnishing the syrups" now so much in vogue), and the crystalline mass is dried; when it is ready for the market.

If it be sold as loaf, the mass as it comes from the mould, is wrapped in purple paper, and then forms one of those pendulous cones of sweetness that in days of yore were wont to ornament the grocer's ceiling; though, now, alas! rapidly giving place to the barrels of "coffees," "crushed," etc., that disfigure his floor. Much of the loaf is now broken up in a coarse mill, thus forming the "crushed" article. If this is cracked up into its individual crystals, and then sifted free from the finer dust, it gives the "granulated"

sugar; if ground to a fine flour the "pulverized." The first of these to is certainly a pure and convenient form for use; the second looks as if it afforded an excellent chance for adulteration. "Coffee" sugars are made from poorer stock—that which can not be made into a dry and perfect-grained sugar—or from such stock mixed with the heaviest portions of the syrup obtained from previous processes. Its value is according to its whiteness and "grain."

Since we took up our pen on this subject, our attention has been called to a *novelty* in the way of refined sugars, in which doubtless the public will be interested. The common "crushed" article has always proved quite intractable to the sugar-tongs. To remedy the inconvenience, a member of the firm of "Havemeyer & Moller," N. Y. city, has invented and patented what may be called a *blocking*—instead of a *crushing* apparatus, and which the firm have now in operation. In this, a loaf is first cut up by a number of circular saws into slices of a suitable thickness. These are then passed between two rollers studded with knife-blades, which cut the whole into tolerably regular and squarish blocks of different sizes, but averaging cubes of about *three quarters of an inch* in each dimension. The product they have denominated "*block crushed.*" Its introduction to the tea-table will, we think, be marked by an "era of good feeling," and by a largely increased security in—the management of the tongs. Discreet house-keepers we are sure, will not fail to be furnished with the genuine "block crushed," that is, as soon as the market is supplied.

We are now prepared for a speedy solution of the question as to which is the most economical sugar. It has been seen that no sugar is *pure* until it has been refined; and even then only the *best* refined article is so. This forms a clear, dry grain, is strong—is sugar, and nothing else. *Pure sugar is pure white*, never of any shade beneath this: *and this, and this only, is pure sweet.* "The raw sugar of commerce," says Tomlinson, in his Cyclopedia of Useful Arts," really consists of a crystalline flour of pure sugar, moistened throughout with molasses, *often to the extent of one third of its weight*, and often more than the crystals can contain;" and elsewhere he adds, "mineral and vegetable impurities." But molasses is more than half water and impurities. Now water is not sugar—it is not sweet, and cannot be. Impurities are not sugar—dirt has no sweetning property.

The smallest insight into the chemistry of sugar, and into its relation to all forms of foreign matter with which it may be intermixed, would convince the "old ladies" of both sexes that they are wholly self-deceived when they assert that brown sugars are more sweetening than white. They are deceived *in this way*: the brown sugar is part molasses, hence part water, and also contains a little acid from the original cane-juice. So it is already partly dissolved, and imparts its taste at once to the tongue; in addition to the fact that that taste is a rather *strong one*, for sundry good reasons already shown. But pure sugar-crystals, which are sweetness, and nothing else, still do not dissolve instantly: they are slow, when taken on the tongue, to yield the sweet they possess; and therefore they have been set aside on the plea that they are destitute of sweetness? As well pronounce impure salt the *more salt*, as impure sugar the more sweet. But the housewife says the "strength" is "taken out" of the refined sugar; and so she uses a mixture of sugar, and water, and filth, *because* pure sugar is not sweet enough! And so, too, she buys water and filth in her sugar, *because* she lacks faith in the real sugar itself! Is she ready to apply the same principle to her flour, and prefer that which is liberally compounded with cockle, chess, and dirt, *because*—pure flour is not strong and nourishing enough? Wax can add nothing to the sweetness of honey, and therefore honey can lose no sweetness by being freed from wax. Sugar, so long as it will crystallise perfectly, can no more lose its sweetness, than gold can cease to be gold. But as never so much copper in gold, is no addition to its value, so is never so much of foreign matters in sugar wholly unavailing to increase its strength or sweetness. The cheapest sugar is therefore the driest, the purest, the best quality.

Finally, sugar, pure or impure, may easily be used too freely, especially in the warm season, and by persons of bilious habit, or those who take too little active exercise. Many dyspepsias, liver complaints, bilious attacks, fevers, neuralgias, rheumatisms, urinary and cutaneous disorders, are mainly the product of two free use of sugar and other concentrated foods, for the exercise and the air that are taken by the consumer.—*Life Illust.*

Birds.—The editor of the *Farmers Journal* says, that, aside from the invaluable services of birds in keeping injurious insects in check, they amply compensate the farmer for their share of his grain and small friuts, by eating the seeds of weeds that are allowed to mature, and that those sportsmen who shoot the birds in his fields, are entitled to the same respect as is due to those who rob his hen-roosts.

FENCING IN CANADA.

In our last volume we devoted a good deal of space to the subject of fencing. We believe the discussion, communications, &c., resulted in much good to the community. Many persons have been prevented from undertaking costly experiments which would have proved a failure, as they had already done in the hands of persons well qualified to conduct them properly. Hints and suggestions were also thrown out which have led to trials and experiments in the right direction. We do not propose to give so much attention to the subject of fencing—although none can be more important—in the present volume. The following observations, however, from a member of the Louth Farmers Club, are so much to the point, that we willingly make room for them. Mr. Philip Gregory addressed the Club as follows:

Mr. President and Gentlemen—At our last Meeting I was caught and harnessed, not very willingly you recollect, to open the discussion at this meeting of our Club, and a subject named for me—not a subject of my own selection, but rather pressed on me—and should I inflict a punishment on you, by listening to me without a corresponding benefit to you, you must not charge it to my vanity, but to my ignorance, and a natural disposition to try and add something to the common stock, from which I have so far only been a recipient.

The subject of Fencing is one of great importance, and much more might be said on it than my humble ability will admit of, or time allow to go into detail; so that I shall occupy but little time, being persuaded that there are others here that can do so to a better purpose. There is no need of telling you how our fathers built the log fences that enclosed their first turnip or potatoe patches in Canada: it is a thing of the past, and in less time than has elapsed since the log fence fell into disuse, it will not be necessary to tell you how the rail fence that succeeded it is erected. At this time, however, the rail fence that we all know how to make, and what it costs, is the fence for the time; but as rails have risen in price from less than $10 the 1000 to $30 and upwards in a very few years, so that before many years pass we need not calculate to buy them at any reasonable price. That rails might be more economically used than is commonly done there is no doubt, and let it be but to ever so small an extent, the aggregate on the fences of Canada would be no inconsiderable amount saved.

I saw a fence not far from London this fall, made of posts and three rails set in, and on an embankment mostly thrown up with the plough. I believe it to be a cheap and good fence, and, being straight, occupies but little ground; but I saw its defects also—in the spring and early summer, before the ground becomes dry and solid, the hogs had commenced rooting in the side of the embankment, and finally went through it in several places. It appeared to me that the embankment was not thick enough in proportion to its height. It, however, made a formidable looking fence, and no doubt would be very durable. Mr. R. L. Dennison, of Toronto, said he made a piece of fence on this plan some years ago, and he considered it the best fence he ever made. The embankment was about two feet high, and three feet at the base. He used two boards instead of rails to finish his fence. He thinks the ditch no evil but a benefit; nothing ever got through this fence. He said he intended to make some of the same kind of fence next season, but will use rails instead of boards.

As timber becomes more scarce and dearer, the board fence will replace the common rail fence); but it is much dearer now, and more subject to decay. Cedar posts are said to be very durable in a fence. There are so few used here, and those so recently planted, that I can say but little as to the economy of using them, as they would have to be brought from some distant part of the country, while we have oak and chestnut at hand, and both make very good posts. Chestnut is a timber of very rapid growth, is easily worked, holds a nail exceedingly well; and a chestnut pole, the size of a common rail, will last as long as a split rail from a full grown tree.

I have taken some pains, but without any satisfactory results, to ascertain what would be the probable expense of live fences, and also of stone. The best treatise on growing a hedge that I have met with is by a gentleman calling himself Caleb Kirk, in the *Albany*

Cultivator. He premises that it will take thirteen years to bring a hedge to maturity, and in a detailed account makes the cost of planting and dressing for that time to be $29 50 cents for 60 rods. The calculation seems to embrace all that would be necessary; but I am afraid it would be like the French Engineer, that was called on to examine the estimate for building a house, who said, "it was all correct, but we must add $1000 for *dumting dat got no name.*"

I have had a little experience myself in hedging, and I find that the cost of raising hedge fences consists in the length of time the plant takes to form a fence, and the careful watching and weeding it requires during that time, and in replacing any dead sets, and in erecting an external fence of some kind, to keep off the cattle and sheep until the plant has attained to a sufficient vigor to protect itself; and the farmer who is not prepared to incur the cost and trouble of performing all that faithfully, I would strongly advise not to meddle with planting hedges, as, without the requirements I have mentioned, he could not succeed in raising a hedge fence of any value.

I have read the arguments for and against a great variety of hedge plants, but public opinion seems to settle down on our native thorn, as a hedge plant for Canada. It, however, is slow of growth, and difficult to obtain in sufficient quantity for extensive planting. A Mr. Becket, in answering queries proposed by Mr. McDougall, for the information of the Agricultural and Horticultural Central Club, says, "It is surprising that the native thorn has not long since been brought into general use as a fence, and any farmer who is desirous of fencing off his fields with quick-set fences, cannot, in my opinion, do better than confine his selection to the native plant." So far I would agree with him; but he goes on to say, "All he (the farmer) has to do is collect the ripe berries in the fall; put them in a heap in the earth during winter, that they may ferment and pulp; take them up and sow them in drills in the spring, and in two years from that date they will be fit for transplanting into hedge rows." He may have been fortunate enough to have found berries the seed of which would vegetate with so little trouble and so soon. If he has, he is more fortunate than myself, or any other that I have heard beside him, who have attempted to raise plants from the berries.

Some four or five years ago I collected about a peck of thorn-berries in the fall, and fermented them, so that I could pulp them. I then subjected them to alternate freezing and thawing several times through the winter. In the spring I saw no signs of vegetation, and still left them in the box, where they had been previously mixed with good soil, until the next spring. Some of the capules then began to burst, and I then planted them in a seed bed; but only about one hundred plants made their appearance above ground; and I believe that Dr. Beadle tried them on a much larger scale with about the same success. There would be about eight thousand berries in a bushel, and on an average there was not more than one germ in a berry in any that I examined. The capule that encloses the seed is one of the hardest, if not the hardest, vegetable substance that grows, and requires more than one season to soften it sufficiently to give the seed a chance to vegetate; hence the reason of so few of them growing.

The Niagara District, and indeed the most of Canada, can never be hard set for a material to build fences of, while inexhaustible quarries of stone are often found on the farm, or within a few miles of any farm where other material could not be had. In any locality where stone could be laid on the line of a fence, at a price not exceeding $4 per cord, a stone fence in twenty years would be a cheaper fence than one made of posts and boards. The material of a board fence in that time would be useless, while the stone would be available for all time to come. There are but few farmers in Louth that could not, if they willed it, haul 20 cords of stone in a winter. Our teams must be kept, at any rate, and are often lying idle, while a job of that kind would give employment in the winter to a hand that we would not otherwise need, and have him by us when work of a more pressing nature would require additional help.

Cherry Stones.—J. C. Holmes, after stating the well known fact that cherry pits must be buried while yet fresh, said that he planted them at once, spreading tan-bark over them if the season was dry. The following spring they came up through the tan-bark, and do much better than if planted in spring. To which we may add, that if cherries are planted in the autumn, with an earth covering merely, a serious difficulty often occurs, in the hard crust formed on the surface, through which the young cherry plants find it sometimes impossible to penetrate. The tan-bark obviates that difficulty—finely pulverized stable manure, and perhaps peat or leaf mould, would do the same.—*Country Gentleman.*

CHINESE SUGAR CANE.

Considerable attention has been bestowed upon the culture of this newly imported plant, in the United States, during the last two years. Some trials have also been made in Canada with fair success. From the accounts we have read in our exchanges, we would not advise our readers to make a trial on a large scale until its utilities are better understood. The following letter form Mr Chas. Eliot, of Sandwich, C. W., has appeared in the *Colonist* of this city. We have not the pleasure of this gentleman's acquaintance, but presume his statements may be relied on :—

Sir,—I have lately seen in your *Colonist,* some remarks respecting the Chinese Sugar-cane, Sorghum Saccharatum. Although my knowledge of this plant is but limited, I can still perceive that it possesses qualities, which would assuredly render it a very valuable acquisition, and well worthy of extensive cultivation, not only for fodder, but for the more important purpose of manufacturing sugar. I sowed it this year, as late as the 26th of May, in hills three feet apart by two and a half feet; a great portion of the seed, which it produces in great profusion, fully ripened. In the hill, at the first hoeing, I thinned out to six or seven stalks; they attained a height of from twelve to fifteen feet, with a diameter of about an inch near the ground, abundantly furnished with long succulent leaves. This Sugar-cane is readily mistaken for Broom Corn, which it closely resembles, differing only in the color of its seed; that of the Chinese being jet black. Of course, a practised eye will discover many other distinctions, but I allude to ordinary observation.

I cannot conceive why the name should be changed into Sugar Millet. In the East Indies I have eaten the Sugar-cane of those tropics, and this Chinese one appears to contain as much saccharin property as that. Children, I know, devour it as eagerly as they do sugar, and that, I think, a pretty good criterion for forming an estimate of its lusciousness.

This vegetable will thrive wherever the Indian or Broom Corn will advance to maturity. In our county of Essex, it would prove a certain crop. Remember, I sowed it as late as the 26th of May; yet it was harvested in September. It is necessary to bear in mind, that plants, not indigenous to a country, do not prosper so well the first year as the second; but that they continue to improve, provided some little attention be dovoted to them, until they become perfectly acclimated. My experience of many years verifies this—more especially with seeds imported from England and the warm latitudes of the States.

I have no hesitation in strongly advocating the introduction of this exotic, feeling convinced that sugar can be extracted from it in sufficient quantities to satisfy all our requirements. It is a sugar-cane of the Chinese, and I can see no reason why we should not convert it into ours. The leaves we might appropriate to foddering cattle, and the stalks to sweetening our bohea.

I will most willingly give some seed to any person who will bestow a little care on its growth, and will afterwards test the virtue of the plant for making sugar, which could be easily ascertained on a small scale.

I am, Sir, your obedient servant,

CHARLES ELIOT.

Oil of Mustard in Rheumatism.—Where one third of the male population complain, to some extent, of rheumatic pains, in the fickle climate of New England, but more especially along the sea shores, physicians have it in their power to mitigate an immense amount of severe suffering by prescribing the volatile oil of mustard. It is employed as rubefacient, being first diluted in its own weight of alcohol at forty degrees. Some patients may object to its pungent odor; but that is temporary, while the remedy may in some cases prove a permanent cure. Make the application at least twice a day, and protect the part with soft flannel. Mustard mills are in operation in the cities generally, at which the oil may be procured, it being an article not much in demand in the arts. Were it not for detecting it by a pungent odor, this oil would have become a secret remedy for rheumatic pains years ago. A nostrum loses miraculous effciency and curative powers on becoming known.—*Medical World.*

Dioscorea Batatas or Chinese Yam.—My opinion coincides with that of those who think this esculent very much, if not altogether a humbug, notwithstanding the flourish of trumpets which heralded the introduction of this "celestial" stranger among us the past spring. I planted the vegetable in question here, in excelleut soil, and had it planted about eighty miles south of this, on the eastern shore of this State, near Easton in Talbot County. In neither instance did the tubers increase more than two inches in length, nor were their diameters very sensibly enlarged. It would require two or three dozen of such vermin of vegetables to equal in size one respectable sweet-potato. I think the Dioscorea batatas may be set down as "very small potatoes and few in a hill." E. L. R. *Baltimore, Md.—In Country Gentleman.*

IMPROVED BREEDS OF PIGS.—ESSEX.

LORD WESTERN'S ESSEX BREED.

The Essex pigs, have been indebted for their improvement to crosses with the foreign breeds, and especially the Neapolitan, and with the Berkshire swine. They are mostly black and white, the head and hinder parts being black, and the back and belly white; they have smaller heads than the Berkshire pigs, and long and thin upright ears, short hair, a fine skin, good hind quarters, and a deep round carcass; they are also small-boned, and the flesh is delicate and well-favored. They produce large litters, but are bad nurses.

The most esteemed Essex breeds are entirely black, and are distinguished by having small teat-like appendages of the skin depending from the under part of the neck, which are commonly termed *wattles.* Some of these animals will attain the weight of 480 lbs., but they are not, according to some breeders, quick fatteners; while others prize them for their rapid growth and aptitude to lay on flesh, as well as for its excellence; it forms small and delicately-flavored pork. Lord Western has been the great improver of the Essex pigs, and his breed is highly esteemed throughout Great Britain.

CHINESE SWINE.

CHINESE PIG,

From a Sow sent direct from China to William Ogilvy, Esq., Hon. Sec. Zool. Soc.

This breed forms one of the recognized stock breeds of England. There are two distinct varieties, the *white* and the *black*; both fatten readily, but from their diminutive size attain no great weight. They are small in limb, round in body, short in the head, wide in the cheek, and high in the chine; covered with very fine bristles growing from an exceedingly thin skin; and not peculiarly symmetrical, for, when fat, the head is so buried in the neck, that little more than the tip of the snout is visible. The pure Chinese hog is too delicate and susceptible of cold ever to become a really profitable animal in this country; it is difficult to rear, and the sows are not good nurses; but one or two judicious crosses have in a manner neutralized it.

This breed will fatten readily, and on a comparatively small quantity of food; and the flesh is exceedingly delicate, but does not make good bacon, and is often too fat and oily to be generally esteemed as pork. They are chiefly kept by those who rear sucking-pigs for the market, as they make excellent roasters at three weeks or a month old. Some authors point out five, some seven varieties of the Chinese breed, but these are doubtless the results of different crosses with our native kinds; among these are black, white, black and white, spotted, and blue and white, or sandy.—Many valuable crosses have been made with these animals; for the prevalent fault of the old English breeds having been coarseness of flesh, unwieldiness of form, and want of aptitude to fatten, an admixture of the Chinese breed has materially corrected these defects. Most of our smaller breeds are more nor less indebted to the Asiatic swine for their present compactness of form, the readiness with which they fatten on a small quantity of food, and their early maturity; but these advantages

are not considered by some persons as sufficiently great to compensate for the diminution in size, the increased delicacy of the animals, and the decrease of the number in the litters. The best cross is between the Berkshire and the Chinese.

We have been presented with a pair of improved Berkshires, from the pair to which was awarded the first prize at the New York State Fair held at Elmira. If they prove valuable, we shall be able to spare samples for breeding purposes in a few months.

Steam Plough in Operation.—Mr. W. Smith of Wolston, England, under date of Nov. 13, thus writes to the Editor of the Mark Lane Express:

Sir—I have since harvest plowed by steam the whole of my farm, except a bit of wheat stubble left to try an experiment upon in the spring, and a bit of clover-ley plowed with horses. It may be interestiug to some of your readers to know the result. I find that the implements exhibited by me at Chelmsford are perfect; that an ordinary seven-horse engine is sufficiently powerful for every useful purpose; that any clay, hilly or uneven field may be plowed: that in plowing my bean and pea stubble at a depth of six inches, I did an acre in one hour and thirteen minutes, and an average of five acres per day, including the time for shifting from field,to field at an average cost of 5s. 2d. per acre, including men, coal, water, and horses for shifting; and that in plowing my wheat stubble, at a depth of eight inches on the heavy and ten inches on the light land, I did an acre in two hours, and an average of three acres per day, including time for shifting as above, at an average cost of 8s. 8d. per acre, including men, coal, &c., as above; to this must be added interest of money and wear and tear, say 1s. 6d. per acre, which will be the outside, the tackle coming in nearly as good as it went out. As to the value of the work, I give it to you in the words of practical farmers who visited me: "On the wheat stubbles the common plow is no use against yours; on heavy land the spade cannot equal yours; on bean stubbles one plowing with yours is worth more than two with the common plow."

How to Feed Young Horses.—The adult horse does not require so much of the flesh-making principle as the young and growing animal, but he seems to require a greater variety. The adult merely requires enough to replace the waste—the wear and tear of his system. If he obtains more than this, the surplus is either excreted from the body, or else stored up within the same in the form of fat; and everybody knows that a fat horse, or a fat man, are not best adapted for a race, nor for hard labor; but all others (except those in a state of debility) they are most subject to acute disease. With the young and growing animal the case is different. Here we require bone, muscle and nerve. Oats, corn and pollard furnish the same. The colt obtains from its mother's milk all the elements of its own organization in a concentrated form—all that seems necessary for developing bodily proportions and hereditary traits—therefore, when weaned, the colt must be furnished with the same equivalents in the form of fodder, ground oats, wheat bran, and meal.

It is the young and growing animal that requires our greatest attention. If our readers desire to raise colts that shall renumerate them for the trouble and expense incurred, they must feed the same, during their minority, with a liberal hand. Any neglect at this period can never be made up in after life; the subjects will always remain lank and lean—living monuments of their master's folly, or ignorance, as the case may be. In addition to the food required for the colt's growth, we must also furnish enough to supply the waste incurred by expenditure of muscular power. We all know that the young are very active and playful. Every muscular movement involves an expenditure of vital force, and thus exhausts the system; therefore, in view of developing their full proportions, and promoting the integrity of the living mechanism, they must have nutritious food and plenty of it. They are not, however, to have a large quantity at a time, but little and often; the stomach is small, not larger than that of a man. Should it be ever distended with coarse and innutritious food, the organs of respiration and circulation become embarrassed, and the blood loaded with the carbon. They require food often, because the digestive organs are very active, and soon dispose of an ordinary meal; then comes the sensation of hunger, which every one knows is hard to bear.—*American Veterinary Journal.*

CANADIAN STOCK AND FARMING.—A VISITOR'S OPINION.

Owego, Tioga Co., N.Y., Dec. 23, 1856.

Wm. McDougall, Esq.

My Dear Sir,—When in Canada last October, I promised to give you a description of the Messrs. Millers' Farming, and Short Horns.

I was highly pleased with the quality of land in the townships of Markham and Pickering, in which they reside. I never saw soil better adapted for turnips. Messrs. Geo., Wm., and John Miller, had as fine a quality of *firm* Swedes as any farmer would wish to grow; notwithstanding the dry season, they were a good medium size. Amongst their numerous varieties, Skervings, in my opinion, was the best both in quantity and in quality.

I am undecided, from my own practice, whether Skervings or a large white firm Swede I have been in the habit of cultivating is the best—the seed of which I obtained from Mr. Wm. Hewer, Northleach, Gloucestershire, England, the well-known Hereford and Cotswold sheep breeder, and whose opinion I value highly. He seldom grows any other kind, and I have no doubt has improved the quality by raising his own seed yearly, with much care. I think the Messrs. Miller excellent farmers, as I felt assured no man can be called a good one who does not cultivate a root-crop, keeping a proper portion of stock to the number of acres he cultivates; this succulent crop adds much to the health of the stock, as well as much *juice* to the *manure heap.*

The Messrs. Miller have a fine herd of Short Horns and grades, having imported from Scotland twelve head of the former, ten of these heifers and a bull are equal to anything I ever put my hand upon—beautiful in symmetry and excellent in quality. I am very happy to meet with such a class of Short Horns, as I have never before met with so many in one herd, uniform in quality; they are truly worthy of just notoriety, and I think very hard to be beaten by any breed. The only reason I have to dislike Short Horns is, that I have found in *all breeders' herds* two, and more generally three qualities, in the same herd, and I do believe that no man can be deemed a *proper breeder*, with such disunion in his herd. But the Agricultural press has been as much to blame as "novice breeders;" it has "puffed" and portrayed second and third class animals, in the most extravagant manner, to the injury of the public. It has advertised third class bulls, to go to cows at twenty dollars per cow, when the animal itself would have been very dear indeed to a breeder to purchase at that price and who had only a few first-class females to be injured by him. Here *novice breeders* and Editors have very much lacked in judgment,—they have employed artists to make their bulls appear on paper enormous in size, and beautiful in symmetry, while the original was of the coarsest bone, and the most miserable quality of flesh, with hollow crops. These same artists being "noted novice breeders," makes these facts, Mr. Editor, now appear more stubborn.

Now, sir, I contend that the person who bred these Short Horns of the Messrs. Miller, thoroughly understood his business, although I never before heard his name —*his hand* has governed him in the selection of his males, by which he has gained

equality in *quality*, all ranking in first-class. Such a man has never needed a "puff" and probably his name has never appeared in print as a breeder of Short Horns. When "novice judges" at our fairs get "trimmed out," such men will occupy their just and truly honorable station. Such men, in the present state of things, lay hid, or meet with a repulse from novice breeders, should they chance to offer an opinion. But, Mr. Editor, these artificial men, are beginning to find their proper level.

Examining another young bull imported by Messrs. Miller, at the same time, I found of different quality; he was leathery in his skin: finding this quality, I began to doubt whether S.Horns could be uniformly bred, but on questioning Mr. M., I found he was not bred by the same person; this again strengthened my opinion that they could be bred of first-class provided their breeders understood their business. This gentleman had searched far and wide to select the best bull he could find out of his herd, and told them he was unsatisfactory to him, although the best he could do, and that he had been five years in selecting the bull he had just purchased for himself, and he out of the hands of the butchers. Had all Short Horn breeders been as *careful* as this man has been, the breed would have formed a very different character in my estimation. Had I ten such Heifers as the Messrs. Miller, no second or third class bull, should enter my yard. Such a stock would establish any man (*truly*) as a first class breeder, provided his judgment is capable of selecting his males. Perseverance in this matter instead of puffed portraits and puffed articles in papers, is the most sure way to success, for such puffing bubbles must burst; the lenient hand of time brings such things to an end, all we require is patience.

I have seen descendants of Mr. Bates' herd, extensively exhibited at fairs in this country and Canada, many of which have gained first prizes, with flesh of second and third class quality, when it was only the *name* of a "puffed man," that gained it, and the animals have flourished on over-grown portraits, symmetrically drawn on paper, to attract all novices, and it has been upon this principle that Short Horns have gained their *assumed notoriety;* had they gained it by producing such animals as Messrs. Miller, they would have deservedly obtained first class, and it would have saved me much trouble in denouncing their evils. "Judges" have never looked sufficiently to quality—size has been their aim, and they have overshot the *right mark;* but enough of this, I have said so much on the same subject before. If the Messrs. Miller procure a *proper bull*, Canadians will find them breeders hard to be beaten.

The Messrs. Miller have a very fine flock of sheep, but not being a very strong advocate for blue-faced Leicesters, I valued their Cotswolds much higher. They have some very fine ones of the latter, and I consider the former well bred of their kind.

I was sorry to see that these spirited importers had *no taste* for gardening, but the old adage is, "a good farmer never makes a good gardener," still a little refinement in the flower and kitchen gardens, speaks well for the inmates of the house to passers by, and gives a lively appearance to the neighborhood.

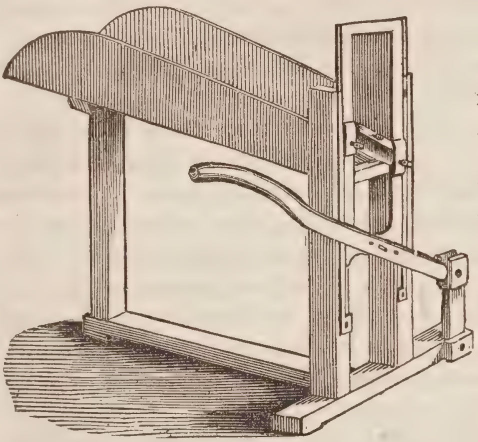
I was much amused with the description Mr. Geo. Miller gave me of the building

of his mud house. This he did with his own hands, and a three-tined dung fork. A person chopped straw with an axe, mixed it with the mud dug from the cellar, while he laid the wall, which, when sufficiently dry, he hewed in shape with a broad-axe. This he said cost in the whole, 113 days' work for one man; he being the principal operator. It was afterwards covered with small stones and lime mortar, giving it the appearance of stone. His orchard was planted and grafted by his own hands, which had the appearance of a very thrifty growth; therefore he enjoys the sweet sleep of industry.

The Messrs. Miller abound in large Clydesdale mares and colts, quite an acquisition to the country, in my opinion, and Canadians will find it to their advantage to cultivate such animals.

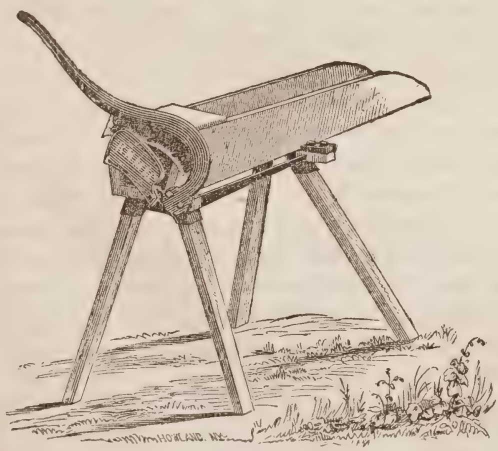
I am, Dear Sir, yours sincerely,

WM. HY. SOTHAM.



HAND STRAW CUTTER.

We have given descriptions of various kinds of Straw Cutters in previous numbers of the *Agriculturist.* The above cut represents one in common use in some parts of the country. When well made they answer a good purpose. The straw is moved by the hand. It is simple and cheap, but not, in our opinion, so good as the cylinder machine.



SMITH'S PATENT LEVER CUTTER.

This is a strong machine, well adapted for corn stalks and coarse fodder. It is not easily injured in inexperienced hands, or from exposure to weather, &c. We are not aware that any of this kind are manufactured in Canada. It is an American machine.

BOTS IN HORSES.

To the Editor of the Agriculturist.

SIR,—I have received and read the December Number of the *Agriculturist* with much satisfaction.

That learned lecture delivered before the Legislators of the State of Maine, upon Colic and Bots in Horses, is worth ten years subscription for the *Agriculturist*, to any lover of that noble animal, the horse.

His description of Quacks making a "slop shop" of the horse's stomach, I believe to be perfectly true, and that many a fine animal has been killed by being drugged for Bots.

I most decidedly differ from the learned lecturer when he states that Bots are "harmless" in the stomachs of horses.

"He says he has heard some wonderful stories related of Bots burrowing through the coats of the stomach, this, he thinks, rarely takes place while the horse is alive; that cavity is the home of the Bot, its natural habitation, for he knows of no other."

I will admit the "habitation," and relate a case that came under my personal observation, and ask a few questions for information :—

More than thirty years ago, in the month of March, a man had a horse, which had been poorly wintered, taken sick at my place. The animal appeared to be in great distress; rolling, biting his flanks, stretching, and rolling again. There were many men present. Some said he had Bots, others the Colic; however, it was the general opinion that he had not stuff enough in him to produce the Colic. The pain continued about thirty hours, when he died. I had the carcase opened while warm; there was no visible sign of Colic to my dull understanding. Taking out the almost empty stomach, we saw large dark-looking spots upon it, externally covered with small black specks or points protruding through the stomach; passing my finger over the place it felt hard and rough like a grater.

Opening the stomach we discovered these dark spots to be a compact mass of bots, the largest spot the size of my hand, and two other spots each more than half as large; altogether they would form a space six inches square, and contained several hundreds of bots. They were as compact and as well fitted together as cells in honey comb, and as the Lecturer observes, they were attached to the stomach by "one end," which he does not say, and were as large as the full-grown Bot-fly. I poured strong whiskey on them, which had no visible effect. They appeared perfectly temperate. I regret that I had not turned the stomach over and poured the whiskey directly into their face and eyes, to see if that would make them wink. This made me suppose that drugs could not be given to kill Bots without killing the horse, which I verily believe is too often the case. Scraping the Bots off the stomach with a knife, to which they were firmly attached, we were astonished to find the whole inside coat of the stomach eaten up, or gone the full size of the patches covered with the Bots, with innumerable holes entirely through the stomach.

Mr. Editor, I desire to ask the learned lecturer or any one who says that Bots are *harmless*—

First—What caused the death of the horse above dissected?

Secondly—Why is the horse afraid of the Bot-fly?

Thirdly—Why does the horse during the time the fly is laying his nit or egg on the hair of the horse, so often rub with his lips and teeth the parts covered with the eggs?—This is surely the case—and why is it so?

Fourthly—The lecturer says the "stomach is the house of the Bot." *Suppose it is*—was the horse created for the very purpose of hatching and maturing the Bot-fly?

Fifthly—Here is the sum of the whole business. What does the Bot live upon in the stomach from the time it is hatched to the full-grown fly, does he eat hay second-hand from the horse? if so, he is *harmless;* or does he draw his nourishment from the juices of the stomach?

Lastly—How was it in the case of the horse whose death I have described: the horse was poor, the stomach of course lean and dry, and the Bots numerous: would self-preservation induce the Bots to eat through the coat of the stomach? and if so, was it any damage to the horse, to destroy a part of the inside coat of the stomach, and make an hundred holes through it?

An answer to these several enquiries will much oblige,

Your humble servant,

Paris, Dec., 1856. H. CAPRON.

A correspondent says that it is a well-known fact *away down East*, that cows will drop their calves in the day time, if they are milked the last time for the season on Sunday morning—try it. This is of material consequence to all who stable their cows.

TO PREVENT SMUT.

Put one bushel of lime to ten of wheat, clean your barn floor well, put down the desired quantity you want of lime, then stir it well, then sift over slackened lime until you get the quantity that is wanted, then wet it and stir it three times a day for eight and forty hours: twenty-four hours will help it but the other will cure it. Balded wheat is more subject to smut than the bearded wheat; this I have observed for several years.

JOHN McCORMICK.

BURFORD, Dec. 25, 1856.

THE MUCK BED.—There is a "placer" too often unworked, which contains untold wealth to the farmer. It is a well-established fact, that two loads of muck, which may be had at the cost of draining, composted with one load of animal manure, furnish three loads of fertilising material equal to barn-yard manure. Let not this means of increasing the product of the farm remain unemployed. Add muck to the manure from the stables spread it over the yards, use it freely. If sufficiently dry, it forms a capital bedding material for stabled animals, absorbing the liquid manures, and becoming thoroughly incorporated with the solid.

Draining of wet lands and marshes adds to their value, by making them to produce more, and by improving the health of neighborhoods—both important considerations.

FARM MANAGEMENT—LOSS OF MANURE.

To the Editor of the Agriculturist.

Credit, C. W., Jan: 17th, 1857.

Sir,—As a young farmer having everything to learn and but litle to teach, it is with considerable diffidence that I take up the gauntlet thrown down to correspondents in your December number.

By bringing before your readers, what I cannot but consider two very important points in the farm management (or rather mismanagement) of this country, I hope to draw forth remarks from practical men, their opinions, and the results of their experience, here and at home; which I am convinced will be of very great benefit to the agricultural community at large.

The points to which I allude, sir, are *the great waste of cattle food, by unnecessary exposure of stock to wet and cold, and the needless loss and wasteful use of manure.* By a large proportion of our farmers the first of these is accomplished by allowing the cattle to shiver about during our biting winter in the open barnyard, with perhaps an open shed by way of shelter, and food if they get anything besides the run of the straw rick, a *little* hay or oat straw is thrown out on the ground which the strongest cattle immediately take possession of, the younger and weaker ones which require the most, getting barely enough to spoil their appetite for the straw, by which treatment even if they escape mange and other contageous diseases, resulting from such inhumanity, the whole herd becomes so disgracefully out of condition by the spring, that nearly the whole summer is required to regain their *wasted* flesh. There cannot be a second opinion as to the absurdity of allowing animals to get out of condition, as it is palpably a fact, that all the food a growing beast eats whilst declining in flesh from a given weight, as well as all he eats in regaining that weight, must be lost entirely—*wasted.* And in the case of milch cows it is well-known that if a cow be allowed to decline in her milk for a given time, it will require about double that time and an equal proportion of food to bring the yield up to the original mark, causing a waste of both food and milk, and by the same rule a cow that has been inefficiently wintered, will not only yield an unremunerate supply of milk during the winter, but her milk during a great part at least of the succeeding summer will be inferior both in *quality* and quantity, while as I can prove by my own experience the opposite will be the result of more liberal management.

The second point, loss of manure, follows as a matter of course, the cattle droppings being necessarily of very inferior quality, and even that quality being infinitely reduced by exposure to all weathers: this may be seen to the satisfaction of any one who will visit a common Canadian barnyard, during the rainy months of March or April, liquid manure of the color of brandy and full of ammonia may be seen running away by the hogshead to *waste*—always to waste! as if it were not true that "wilful waste makes woeful want." If we *waste* good dung, we must expect to *want* good crops. Then follows my last point, the wasteful use of the nearly value-

less remainder: we drive through the country in our scorching months of June, July and August, and we see on all sides fields covered sparely over with little heaps of (so called) manure, which have in many cases been out for two or three weeks, and upon examination prove to be mere wisps of dirty, half-rotten straw, and as dry as a chip—the farmer is manuring his summer fallow! is he? Let him not blame his land or the season if he only get fifteen bushels of wheat to the acre at harvest.

Now, sir, as the majority of our farmers are not capitalists, and as agriculture, as a *science*, though progressing, is still young in this country, we cannot expect to have high farming in Canada just yet; we cannot spurt liquid manure over our fields from hydrants after the manner of Tiptree Hall, nor can we (labor being so dear) adopt any other than the most simple plans possible in improving our system of management; nevertheless, I hope to be able to show that in the particulars of which I am writing, much *may* be done. The first step in the manufacture of good manure in large quantities is the proper management of stock, we must have as large a stock to keep up our farms with, as we can make our farms keep up *well*, and it *must be of such breeds and quality as shall best pay for its care and keep.* The system of having two or three cows stabled in one place, and two or three heifers or calves in another place, and two or three horses somewhere else, I would (where practicable) do away with, and to avail myself somewhat of animal heat, and facilitate as much as possible the feeder's work, I would have the whole stock; (except pigs and sheep) in one snug building, somewhat after the plan I send you with this, and which could of course be made larger or smaller to accommodate any stock, it should be placed as near as possible to the barn, and the loft might be filled with straw for bedding,—the food hay, wheaten and oaten straw, should be cut up in the barn with a straw cutter worked by the horses. The system of feeding I do not speak of here. Under this building I would construct a rough cellar, into which the *whole* of the manure liquid and solid could, with the greatest care, be thrown by means of the trap-door shown in the ground plan: the fine double lines represent open drains or gutters, through which the liquid manure would run from time to time on to the heap and become thoroughly incorporated. I am aware that these drains would freeze up more or less in the very cold weather (though not so much as might at first sight appear probable, as the animal heat would keep the temperature up considerably) but this would be of little consequence, as, while frozen the liquid could not of course escape, and if the floor was properly graded towards the drains it must all find its way in the right direction whenever a thaw came. All the labor of piling the dung in the spring and summer would be avoided, it would merely require levelling down occasionally as it got too high under the trap door, and a little gypsum or common plaster, sown now and then over the heap, would tend to fix the ammonia and volatile products of fermentation, and further it would be out of all harm's way from sun or rain. An eave-trough round the building could be made to supply water to the heap occasionally, if it became too dry, but I think this would not be wanted, for I am induced to believe that the great superiority of Peruvian guano over other known manures, mainly consists in the fact that as it drops from the sea fowl, it is the even admixture of the solid and liquid excrement

and *that it is deposited in a climate where little or no rain falls.* If I could avail myself of a side-hill for this building as shown in the elevation, so much the better, if not, I would excavate three or four feet and carry the foundation walls up four or five more so as to give height for a waggon to be backed into the pile for hauling out. I would use as little long straw for bedding as might be consistent with comfort and cleanliness, and keep as large a stock (housed from the beginning of November to the end of April) as the remainder would feed when cut up with hay and oaten straw, &c., so as to get the greatest possible quantity, and of a better quality than if too much long straw were mixed with it; in fact, if I could command the labor I would cut up the bedding too.

Having thus avoided all waste of food, all exposure of stock to inclement weather, and all waste in the manufacture of the manure, without any extravagant or unremunerative outlay, it merely remains to beware of the *wasteful use* of the manure, and here I hope to lessen rather than increase the expense of the present very general system. Presupposing then, that keeping a good stock and having a good proportion of land in grass, I should always have my farm in tolerably good heart, I would have as little naked summer fallow as possible, and instead of hauling my manure in the summer or harvest of the year, I would do this in the fall after the wheat was sown, and then taking a little more time and pains than customary, I would spead and plough it in acre for acre as it came out; in this land I would sow peas or vetches, or such crop as should not exhaust the land, and should come off early enough to prepare for wheat, and I am much mistaken if after all this, I should not get as good a crop of wheat as the man who ploughed in the dry little heaps before alluded to.

Having already, sir, taken up too much of your valuable space, I will only repeat in conclusion, that your opinion and that of others, better informed on the above important topics than myself, cannot fail to be of great benefit to many of your readers, and although these are questions that have been mooted over and over again in your paper, they cannot be too often brought forward while the practice is so lamentably bad as it is at present.

Line upon line, precept upon precept, are as necessary to success in the study of agriculture, as in the doctrines of religion.

Wishing you every prosperity in your useful labors during the present year,

I remain, sir, your obedient serv't,

W. R. FORSTER.

Caterpillars on Fruit Trees.—A Correspondent of the Rural N. Yorker gives the following.—"I had quite a number of fruit trees last season which were attacked very severely by caterpillars, and I got rid of them in the following manner:—I removed all the caterpillars from the trees, with a brush, or whatever was most convenient, killing as many as possible by stepping upon them, and then with a swab put on a band or ring of tar, just below the limbs. I then kept watch of the trees, and in a short time the caterpillars that remained undestroyed upon the ground, began to ascend them, but upon coming to the tar were compelled to stop. They soon collected in large numbers upon the bodies of the trees, when they were easily destroyed."

HARDY PERENIAL FLOWERING PLANTS.

This class of plants has of late years been sadly neglected in this country, for what reason I know not, for nothing makes the garden more gay with so little trouble as they. Look at the English cottagers' gardens, filled with Daisies and Pansies, Primroses and Auriculars, Polanthus and Iris, Phloxes and Carnations, Pinks and Picotees, Ranunculus and Anemones, and a host of others, worthy inhabitants of any garden, and vastly superior to the trash now so common through the length and breadth of the land, loading the air with fragrance and feasting the eye with their brilliant colors and varied forms and tell me where is garden so pleasant to look upon. Some may say "We cannot grow those things in this country," and of one or two of them it is true, but most of them *can* be grown here and that too so as to be hard to beat. During our short, dry summers, many Annuals upon which most gardens depend for effect, are difficult to grow and require great attention. To secure success with any plant it must be looked after, but the herbaceous perennial plants of which I shall now speak require less than most others.

Perhaps it would be well to commence with the noble Phlox, of the beauties of which few persons have a correct idea. The word Phlox means flame, the plant belongs to the Nat order, Polymoniacea. They are all with the exception of one species,—Drummondu,—herbaceous Perennials.

They are separated into two classes according to their manner of growth, the tall ones growing about three feet high are styled Suffruticise varieties, and the lower ones are called Decuesate varieties. They produce large panicles or covymbs of flowers of various colors some of them beautifully striped as Van Houtii, Roi Leopold, &c., and thrive well in good garden soil. By a judicious choice of varieties, they may be had in flower for several months, from June to October. It is needless to enumerate varieties here, for any person ordering a dozen plants from a respectable nurseryman will get as good a collection, as will be needed. Next comes Dielybra Spectabilis, belonging to the Nat. order; Fumariaceœ, the name derived from *dis* two, and *elytron* a sheath, referring to the form of the sepals.

It was described by Linnæus, but never seen alive in Europe till introduced from China by Mr. Fortune, into the garden of the Horticultural Society of London, in 1846. Its specific name, *Spectabilis*, means remarkable, and it is remarkably different in habit to any other occupant of our gardens: the flowers are produced in reacemes, on stalks about one foot long and hang in an exceeding graceful, drooping manner, from the under side. It requires rich light soil, and is easily propagated by division of the roots. It *must* be in every good garden.

The Carnation and Picotee, Dianthus Caryophydus and the Pink. Dianthus Plumarius are well-known but not sufficiently appreciated, and at present good ones are scarce in this country, and consequently dear, but in the course of a year or two I hope they will be both plentiful and cheap. The improved varieties are really elegant and are indispensable in every good collection. Good varieties may be obtained from carefully selected seed, and when once obtained should be perpetuated by layers or cuttings. For boquets the flowers are invaluable on account of their beauty and fragrance.

The Primrose, Primula Vulgaris, from *primus*, is well-known as the earliest plants to flower in the spring, and many of the varieties are beautiful. Cortusoides is one of the best here. The Polyanthus is a sub-species of the common primrose as is also the Auricular; Primula Auricula. In England the Polyanthus is one of the greatest ornaments in the cottager's garden, and of late years it has been vastly improved. I have some very fine varieties raised from English seed, some of the individual flowers or pips measuring one inch across, and 10 or 12 pips in a truss.

The Auricula is a general favorite with the Londoners or Cockney, many of whom will persist in calling them Recklesses, notwithstanding the spelling of the name, and I have seen some excellent ones in this conntry. They must, however, have a little protection during the winter. It is a noble flower and worthy of very general attention.

The Viola Tricolor or Pansy, although strictly speaking not a perennial, may also be made to add to the appearance of the garden, by the gorgeous beauty of its flowers and by procuring good varieties or good seed they may be made to produce flowers two inches in diameter and of every shade of purple and yellow to black and even bronze color.

I might go on with a host of others, but the space forbides, but all the forogoing deserve marked attention, and persons not possessing all or any of them, who intend replenishing or making their gardens in the spring, will do well to try them, carefully discarding all inferior varieties, and may success attend their efforts. Meanwhile, *au revoir*.

W. T. GOLDSMITH.

Rochester, January 6, 1857.

HINTS TO WORKMEN ON HEALTH.

1. Abstain from all spirits and dram drinking. Spirits relax the muscles, diminish the strength of the body, and render men susceptible of disease.

2. Let your food be coarse and plain. Concentrated and highly-seasoned food is, if possible, as bad as liquors.

3. Where (well-filtered) water does not disagree, value the privilege and continue it. Pure water is a far better beverage for the sedentary, and those who take but little exercise, and for those whose labor or exhausted strength do not require stimulants.

4. The quantity (of most things) is always more hurtful than the quality.

5. Take your meals at regular hours always. The human frame is capable of being changed from sickness to perfect health, by a well-regulated system of diet.

6. Avoid everything, however agreeable to the palate, that from experience you find so disagree with you.

7. Make daily ablution the first thing on rising; you will feel stronger and more refreshed from it during the day. I fancy that I hear you say that you have not the time to do so. My answer to you is, rise ten minutes earlier, dip a coarse towel in cold water, wring it out, and rub the whole body over. "Cleanliness is next to godliness."

8. Never quack with your constitution by taking patent medicines; they are offered for every kind of disease, for many of which they are decidedly prejudical, producing very often fatal results. If indisposed (and if it is possible to do so,) remain quiet, avoid all excitement, and obstain from all meats and fermented liquors for the day. In headache and slight fever, this plan mostly effects a cure. Never use purgatives.

9. Take exercise if you value your health, but proportion it to your strength.

10. Never learn to smoke; shun tobacco in all its forms, it stunts the growth, when taken at too early an age; it is a great promoter of indolence and laziness; it causes nervous trembling of the hands, and nervous debility; it has nothing nourishing or stimulating in it, but is merely a narcotic, of which the moral and physical effects upon those who use it are of a very dubious character.

STOVES ECONOMIZING HEAT.

It is well known that cylindrical stoves give out the most heat, and have the best draft, but there are few who seem to know the reason why. They do not seem to be aware, at least, that there is anything in the principle of their construction which imparts to them such qualities. Stove manufactures cannot be accused of possessing too much sientific knowledge regarding the best form of stoves, or we would not see so many blunders committed by them in casting so many with square and rectangular furnaces.—This is especially the case with cooking ranges and stoves,—their fire boxes are constructed on wrong principles.

The reason why a cylinder stove gives out so much heat, and tends to produce such a good draft, is owing to the sides of its fire box or furnace being concave in form. Heat, like light, may be concentrated by concave mirrors; hence the heat is more concentrated in stoves which have concave than those which have square fire boxes; the rectangular form of a fire box may be more convenient for cooking ranges, but there is no excuse for constructing the furnace of any parlor or other heating stove of square form.

The fire-brick for lining stoves should be fluted. Bricks with plain surface are not so durable as the fluted kind, because the latter tends to prevent the adherence of clinker. Some bricks for stoves are actually cast with convex surfaces, as if designed for scattering the rays of heat, thus exhibiting ignorance of the laws of heat.

Bright metal surfaces do not radiate so well as dark, dull surfaces, therefore Russia iron in stoves and pipe does not radiate so much heat into a room as common iron. These surfaces which radiate heat most efficiently also possess the power of absorbing it and *vice versa.*

As the intensity of heat varies as the square of the distance from the radiating point, it is evident that the nearer the stove is placed to the centre of the room, or space which it is designed to heat, the more uniform will be the temperature of the whole space, and not only so, but a greater amount of heat will be economized.

Stove manufactures have devoted an immense amount of attention to elaborete the surfaces of cast-iron-stoves, and to produce an incalcuable amount of complicated forms, but not so much to produce stoves bassed upon the philosophy of the laws of heat. We hope that more attention, scientifically, will hereafter be devoted to this great and important branch of American manufactures.—*Scientific American.*

FOR THE HICCUPS.—Travelling some time since by railroad from Colmbus to Baltimore I took my seat immediately in front of a gentleman who was suffering under a paroxysm of hiccups, to a degree that I had never before witnessed. In a few minutes a person appeared from the end of the car and took a seat beside him ,when he said: "Sir, can you tell me what is good for the hiccups? I have been afflicted in the way you see me since yesterday noon, and had no rest or relief from any physician to whom I applied for assistance; I am worn out with suffering." To whom the person replied. "Sir, I will cure you in less than ten minutes by the watch.—Have confidence, for I am sure I can do it. Hold up high above your head two fingers of the right hand; lean back in your seat, open your mouth and throat so as to give a free passage to your lungs; breathe very long and softly, and look very steadily at your fingers." In less than the time specified the cure was performed, one hiccup only occurring during the trial. The patient could not express his gratitude, while the practitioner only extracted from him as a fee the promise that he would extend the knowledge which he had imparted as freely as he had received it assuring him that he would never be disappointed in the result. We were all struck with the fact. Since then I have often had occasion to practice upon patients in the same disorder, and never without the most signal success.—*Water Cure Journal.*

CAYENNE.—A Cayenne corespondent of the *Journal du Havre* says:—"The gold fever gains on us seriously; we herewith send you home 30,000f. worth, the produce of a month's labour of 35 miners on the banks of the Arataya, not far from the mountain which bears the name of the Empress Eugènie. Gold is discovered every day and in every direction, but the basin of the Approuague produces the most brilliant results. The governor has gone personally to inspect the principal places. It is a journey of twelve days, which, we hope, will secure to France the possession of a real California in this poor Cayenne, so roughly tried during two centuries."

Corn-Planters.—We have given descriptions of a great variety of planters—some drawn by horses, some by hand, others to be carried as a cane, or worn upon the heel of of the boot. Mr. D. B. Neal, of Ohio, has recently patented a planting hoe, or rather a machine that may be attached to any field or garden hoe, that drops corn and smaller seeds. Verily, "ingenious fancy is never better pleased," now-a-days, than when at work to accomode farmers.—*N. E. Farmer.*

PREMIUM FOR IMPORTED AGRICULTURAL STALLION.

Our readers are aware that it has been the practice of the Directors of the Provincial Association to offer increased premiums to such imported animals as shall obtain first prizes at the Society's annual exhibition. This encouragement to importers has already been productive of beneficial results.

The Board of Agriculture has officially announced that a premium of £50 will be given to the best Agricultural Stallion, imported from Britain since the last exhibition, at the Provincial Show, to be held at Brantford in September next. The Association offers £35, and its President, Geo. Alexander, Esq., of Woodstock, £15, making together the handsome sum of $200. Such a premium, with the honor attached to the winning of it will, no doubt, induce enterprising individuals to import for the object of the competition, and thus become the means of benefiting their country. The Secretary of the Board of Agriculture will furnish any additional particulars that may be desired. Mr. Alexander deserves the thanks of the country for the zeal and liberality which he evinces in entering upon his important duties.

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Canadian Agriculturist.

VOL. IX. TORONTO, MARCH, 1857. No. 3.

BOARD OF AGRICULTURE—BONUS TO SUBSCRIBERS.

We have much pleasure in announcing to our subscribers that we have made arrangements with the Board of Agriculture, to obtain from that body, *a copy of its volume of Transactions* for *each subscriber* to the *Agriculturist* for the present year! This volume will contain an account of all the operations of tho Board, abstracts from the Reports of Agricultural Societies, Prize Essays on Agriculture, Official Report of the Association, Prize List, &c., &c. It will probably make a volume as large as the *Agriculturist,* and will be printed so that *the two may be bound together.*

The sheets as they are published, will be sent by mail to all societies, clubs, and individuals, whose names are on the mail books of the *Agriculturist,* and without any *additional charge to the subscriber.* We hope the result of this offer, which we are only enabled to make through the liberality of the Board, will be to *double,* at least, the ordinary subscription list of the *Agriculturist.* It will entail on us a very considerable amount of additional labor and expense. Every Agricultural Society in Upper Canada should immediately order the *Agriculturist* (with which the "Transactions" will be sent) for each of their members. Either of the volumes will be worth more than the 2s. 6d. charged as a stimulus to the Society itself, to say nothing of the benefit to agriculture generally. Will any Society spend its funds upon *foreign* journals, when a *Home publication,* and a volume containing the official proceedings, Reports, Essays, &c., of all the Agricultural Organisations of Upper Canada, can be had for the same price? To every subscriber of the *Agriculturist,* we would say,—as a slight return for the *bonus,* as some compensation for the trouble it will entail upon us, send us the name of at least *one* of your neighbors—more if you choose—as a fellow subscriber. The effort will not cost much, and if every person whose name is now on our list will make it a point to do this, we promise to make the paper more interesting and useful than it has yet been. We shall fell much obliged to our newspaper contemporaries—to whom we are already under many obligations for their favorable remarks—if they will notice the above arrangement.

CENTRAL HORTICULTURAL AND AGRICULTURAL CLUB

TURNIP AND OTHER ROOT CULTURE.

At a meeting of the Club, on Thursday last, Captain Beresford, of Newmarket, read the following paper on the Cultivation of Roots:—

The uses of roots were as well known to the ancient Romans as to any British farmer; and the winter-feeding of cattle with roots was practised even among the ancient Gauls. Pliny remarks that "some Roman authors have treated of rapa in only a cursory way. The Greeks more particularly, but if a just order were observed, it should be mentioned immediately after wheat, or at least after the bean; for no other plant is so well adapted for food to all sorts of animals." But though the cultivation of the turnip was known to the ancients it has been left to the British husbandmen to make manifest its importance and in the words of an English writer, "Turnip husbandry greatly aided the transition from the barbarous agricultural usages of the middle ages to the enlightened ones of the present day; and is now well known to every good farmer to be the sheet anchor, or *sine qua non* of the modern alternate and convertible husbandry." At what time the field cultivation of Turnips was begun in Britain, is not, I believe, exactly known. They were employed for domestic purposes at an early date. The field cultivation seems to have been introduced from Flanders, and to have taken special root in Norfolk. Wortidge, in his "Mysteries of Husbandry," printed in 1669, says:—"In Holland they slice their turnips with their tops, and rape-seed cakes and grains, and therewith make mashes for the cows, and give it them warm, which the cows eat like hogs." And he complains o the great neglect of all similar uses of turnips in the farm economy of England. The usual mode of sowing turnips both in Flanders and in Norfolk was broad-cast, and continued so for many years, until the introduction of the drill system; and the benefit which that system confers in respect to quantity of produce and economy of labour, together with the facility it affords to hand hoeing and horse hoeing, and the land thereby being cleansed and fertilized by this important crop, cannot be too fully appreciated. Under due management it may be considered that almost all kinds of soils which are capable of thorough tillage may be cropped of some kind of root, either turnip, parsnip, carrot, or mangle-wurzel. In Britain the practice is to fall-plough the land intended for roots, in this country the earlier in the fall this operation is performed the better, to allow time for the grass and seeds to decompose, and as early in the spring as the season will permit, the land should be ploughed again and well worked with the harrow and the cultivator. With regard to the question of the most efficient system of manuring land for a root crop, an enquiry into it is so vast, and contains within it such abundant matter for discussion, that I shall not enter into it, as we should have to take into account that which is best adapted to promote rapid and early growth, to assist the plant to escape destruction from insect depredation, the effect upon the development of the root, the influence over the chemical constitution of the root, both with regard to the general feeding and fattening powers on the live stock, and lastly to its adaptation to the uses of the succeeding crops in the rotation—in it is contained almost the entire science of agricultural chemistry; still without entering upon it, this much I believe, is recognized, that well rotted dung is essentially necessary to the culture of the turnip, where it is used at all. The turnip is the most important root cultivated; and whatever relates to it may be applied to the culture of mangel-wurzel, carrots, etc., and as barn-yard manure is generally employed in this country, I shall direct my remarks to the mode of cultivation under which I have seen raised large crops of these roots. Where farm yard manure is used the raised drill or ridge method is probably the best, the ridges are made either with a single cast of the double mould board plough or a double one of the common plough, a cart with manure follows, the dung is deposited in the seams made by the plough, the plough again follows, closes the ridges, covering the manure, and the drill succeeds. A light roller goes over the sown ridges to cover the seeds. The distance between the drills should not be less than 27 inches, Tull appears to have used intervals of three feet. Mr. Dawson, of Goodan, Roxburghshire, after some residence in the county of Norfolk, adopted the drill system in preference to the mode which he had seen practised in that county. Mr. Dawson began

the drilled turnip husbandry in 1764, growing nearly 100 acres yearly; he fixed upon 30 inches for the best interval for the purpose, and his practice has been followed in all the border counties. Stevens remarks, "It is not an unusual practice in England to sow turnips broadcast in the flat ground, instead of on drills, and the reason I have heard stated in vindication of the broad-cast method is, that it resisted the bad effects of drought, but for my part, I cannot see how a broad-cast crop can screen the ground from drought more effectually than one in rows, since the plants have to grow and be thinned out to proper distances, and the ground stirred to get rid of the weeds, in both cases, and as the weeding is done by hand instruments in the case of the broad-cast crop, it is not so effectually done," and I may include so economically done, "as with horse hoes in the crop in rows And I think it cannot admit of doubt that the same quantity of manure placed immediately under the seed should promote the growth of the young plant more rapidly than when spread over a large surface of ground," I trust we shall have some remarks by some of the gentlemen present on this point, also with regard to preparing the land in the fall. The after culture of the turnip consists in thinning or singling the plants to the proper distances, and in a series of operations for destroying weeds and stirring the soil. The first is generally done by a horse hoe, when the plants have acquired the rough leaf, or are about two inches high. A few days after this operation the hand hoes go to work, and so hoe the turnip plants as to leave them standing singly at the distance from each other of not less than 12 inches between the plants of Swedish turnips and 9 inches between those of the white. This operation of singling is most important; much must be left to the judgment of the farmer. To show how important careful attention to this point is, it has been shown that the difference of one or two inches between the turnips has influenced the weight of a crop by several tons per acre. It is a delicate operation and requires the superintendence of the master and the hand of a skilful laborer. The raising of stock in this country is an important and interesting question; is sufficient attention directed to this important point? It was likewise a difficult task in Britain to support live stock through the winter months, and the practice of feeding cattle and sheep for market was hardly ever attempted until turnip husbandry commenced. The Canadian farmer experiences the same difficult task; and why, because he affords his stock nothing but dry food. How many cattle are there in this country who, from the time the snow falls on the ground in, December, until the month of April, never partake of any vegetable food? Is it possible to maintain the milch cows and other stock in a healthy condition, without a portion of roots with their dry food? I heard a gentleman, an agriculturist, not, however, a Canadian, say at a public meeting held during the time of the Provincial Exhibition at London, "that turnips were a nasty cold food,—that he was surprised to see the farmers of Canada grow them." In Mr. Hall Maxwell's Report from the Highland Society of Scotland, presented to the Commissioners of Privy Council for Trade, he reports, that the total average under crops was, in 1856, 3,545,721¾; wheat, 263,328; turnips, 459,741¼ acres. What has not root-culture effected in Scotland? what has not the same system wrought in England? England, by maintaining a considerable area in crops, maintains the fertility of her soil; and according to the Journal of the Royal Agricultural Society, produces four times more wheat per acre than France; yet the climate of England is not particularly adapted for growing wheat. In the United kingdom there are 35,000,000 sheep. France has only an equal number: and a French sheep is only half the size of an English sheep. I confess, I view these facts as showing the importance of root cultivation. The land is cultivated, an abundance of food is provided for man and beast, the fertility of the soil is maintained, the land is cleaned by this preparatory crop, and a bed is provided for grass seed, in which they grow and thrive with greater vigour than after any other mode of preparation. There are many persons here present who saw the Toronto Christmas Market. Was it a show of Canadian beef? The Canadian farmer appears to be giving up raising stock—arising from his neglecting his root crop. I have stated that in England, by attention to green crops and raising cattle, four times as much wheat per acre is raised as in France. We import our beef—soon we may have to import our wheat. Every Canadian farmer could, with perfect ease, devote every year a portion of his land to roots; five acres, at least, to every hundred in cultivation; by so doing, he will be able to maintain more stock, obtain more manure, and produce more wheat per acre, than under the present system. The nutritive matter contained in an acre of turnips is great; in a crop of 20 tons, or 45,000 lbs., there were 900 lbs. of thick or woody fibre, 4,000 lbs. of starch, sugar, gum, 670 lbs. gluten, 130 lbs. of fat or oil, and 300 lbs. of saline matter—total, 6,000 lbs. A crop of 25 tons, or 56,000 lbs. per acre of carrots, contains 1,680 lbs. husk, or woody fibre, 5,600 lbs. of sugar, 840 lbs gluten, 200 lbs. of fat,

and 800 lbs. of saline matter—total, 9,120 lbs. The quantity of nutritive matter afforded by a crop of mangle wurzel of 20 tons, or 45,000 lbs. per acre, consists of 900 lbs of husk or woody fibre, 4,950 lbs. of starch, sugar, etc., 900 lbs gluten, 450 lbs. saline matter—total, 7,200 lbs. From a crop of oats, at 50 bushels per acre—the 50 bushels weighing 2,100 lbs.—we obtain 420 lbs. of husk or woody fibre, 1,050 lbs. of starch, 300 lbs. of gluten, 100 lbs. of oil, and 80 lbs. of saline matter—total, 1,870 lbs. A heavy crop of wheat, at 60 lbs. to the bushel, the weight of grain per acre would be 2,700 lbs. The amount of nutritive matter from an acre of Indian corn, at 30 bushels, amounts to 1,003 lbs. From an acre of peas, at 25 bushels per acre, 1,392 lbs. We have, therefore, 6,000 lbs. of nutrive matter from an acre of turnips, 9,120 lbs. from an acre of carrots, 7,200 lbs from an acre of mangel, 1,870 lbs from an acre of oats, 1,703 lbs. from an arcre of Indian corn, 1,392 lbs. from an acre of peas. An acre of good turnips is calculated in Scotland to keep four oxen: would an acre of wheat, or oats, or Indian corn maintain that number? I am indebted to Stevens for these calculations, taken from Johnston's Lectures on Agricultural Chemistry.

The use of carrots on a farm is well known to those who cultivate them. The seed should be sown early in the spring—the land having been well worked, for the carrot delights in depth and in openness of soil. The grand use of carrots on a farm is for strengthening and medicinal food to horses and cattle. A gentleman of my acquaintance was very successful in giving them last spring to his horses, when they were recovering slowly from influenza. They greatly promote the health of all animals. The difficulty attending the sowing of the seed of the carrot operates against any large breadth of land being devoted to its culture. They should occupy, however, some space in every root field of the farmer. The long red mangel wurzel, the globe orange and the red turnip rooted are eminently suited for culture in this country. They are suited to a much greater diversity of soils than the turnip. On peaty soils on the reclaimed bog lands of Ireland, they have produced a large amount of food. Equally a cleansing crop with the turnip, the mangel stores as well, if not better, is excellent spring food, can be sown earlier, not being subject to insect depredation. Experiments have been made of late in Ireland of substituting the mangel for part of the daily allowance of oats to working horses, and a calculation made, that by consuming in this way the mangel produced by half a rood of land, a quantity of oats will be saved, which it would require two acres to produce. This crop should be harvested early. I found them more tender than the Swede, the yellow globe more than the red. In pulling them care must be exercised to inflict upon them as little injury as possible.

The parsnip is even more productive than the carrot. In the south of England and in the channel islands, it is much cultivated. In a trial of the Altringham carrot and the parsnip, in Jersey, in 1834, the same quantity of land which produced 261 lbs. of carrots, produced 540 lbs. of parsnips. The Alderney cows are fed on these roots. Their milk is surpassingly rich, and yields more butter, in proportion to quantity, than that of any other kind of cows. Colonel Le Couteur, an experienced agriculturist, states that out of three crops of parsnips, in the island of Jersey, in competition for a premium, the prize crop amounted to 27 ton 8 cwt. per acre—a quantity nearly sufficient for 10 cows during the six winter months. The methods of culture practised in the Channel Islands, are both broadcast and drill; deep trench tillage is adopted, from 1 foot to 18 inches deep. In the spring of 1854, also in the spring of 1855, I partook of the parsnip root which had been all winter in the ground. They were free from decay and of excellent flavour. That the cultivation of roots have proved itself of extraordinary service to the farmer of Britain, is evident to every intelligent mind. It has enabled them to provide a supply of food for their stock, and maintain them in good condition during—even in that country, the trying season before the commencement of the spring feeding, to maintain the fertility of their land, produce more wheat and keep more stock per acre than even France. I am well aware that in this climate we cannot carry the culture of roots to the same extent as is followed in Britain; but when we look to the amount of nutritive matter obtained from an acre of roots, and that by their culture they are the procurers of other future good crops, I am impressed with the opinion that every farmer should cultivate, in certain proportions, the mangel wurzel, the carrot, Swedish turnip and some variety of the white. By commencing in May with the mangel and carrot, in June with the Swede, and even as late as July with the white turnip, he will be able, to some extent, to avoid those difficulties which we have to encounter in this country with regard to labour, and attend to each crop in its several stages of growth, feeding out these different roots in their several

seasons, and by it turn the earth to the uses for which it is intended, and avoid those evils which the wretched system of a continual growing of wheat is certain to insure, which has reduced the average yield in parts of the neighboring State of New York to 10 bushels per acre, and taking the whole State, the average to under 15 bushels; and even the great State of Ohio, it is said, will soon have to become an importer of food. In Scotland, where turnip husbandry is so much considered, the average yield of wheat in the 32 counties is over 28 bushels per acre, and this includes the northern counties and the Orkney Isles. I allude more particularly to Scotland, as that country, through the Highland Society, affords agriculturists a large and valuable amount of useful information.

The question, can you grow roots in this country, can you harvest them and store them? I shall not discuss. I am fully impressed with the opinion that we can do so, and that turnip husbandry is the sheet anchor or *sine qua non* of the modern alternate or convertible husbandry, that the operations of a farm cannot be conducted with profit without it. For the production of one description of food produces another,—vegetables are converted into mutton and beef to be again returned to the land in the shape of manure. Production and reproduction thus follow each other, ill conditioned farms made to produce waving fields of grain, the cultivated grasses to take the place of those which possess no nutriment and render no return. This is the return that turnip husbandry has wrought in Britain, where great flocks of sheep and improved breeds of cattle are spread over the country, and whose farmers make yearly profits exceeding the rent rolls of some of the Princes of Europe.

In Ireland the increase is most striking with respect to root crops. No longer ago than 1847 the proportion was an acre of green crops to every four acres of corn (wheat). There is now, in 1856, an acre of green crops to every two acres of wheat. The value of live stock in 1841, was computed to be £19,339,000. In 1855, it was computed at £33,508,000. Thus it is where turnip husbandry exists and the culture of roots is considered, the toil of the husbandman receives a return. Where the culture of roots is neglected we descend to 10 bushels per acre of wheat, and the toil of the husbandman receives no return.

A discussion of some length then took place upon the subject of the paper.

Mr. Armstrong observed that the proper preparation of the land, and the selection of the time of sowing turnip seed were very important points. A few days might make all the difference between securing a good crop and a failure. He would also recommend sowing plenty of seed, so that enough of the plants would be able to get away from the fly. As a general rule he found from the 15th to the 20th of June the best time for sowswedes, if the condition of the ground and weather were favourable. The quantity of seed he used per acre was about 2lbs. He would have been glad if Capt. Beresford had entered a little more minutely into particulars of the mode necessary to cultivate successfully in this country.

Capt. Beresford observed, as to the time of sowing, that the fly was not always regular as to the date of its appearance or disappearance. He generally endeavored to finish sowing by the 20th of June, considering that the most favorable season.

Mr. Denison observed that though only perhaps an amateur farmer, he had cultivated turnips successfully on a small scale. He sowed in drills about 27 inches apart. He thought that farmers should not allow their turnips to be lost for want of rain, but if at the critical point, in danger from the fly, and no rain came, they should water them artificially. This might be done at a trifling expense, by mounting an old wine cask upon wheels, with a proper distributing apparatus attached. He had practised this plan with great success. He had not, however, used simply water, but liquid from a tank in the barn yard, and this he thought better, as it pushed the young turnips forward out of danger.

Mr. Fleming observed, as to the distance of the drills, he had found while judging the crops entered for the Etobicoke sweep stakes last fall, that the turnips sown in drills about 27 inches apart appeared to be the best accommodated with, the amount of space they required. Those a greater or less distance apart, did not appear to be so good.

Professor Buckland observed in reference to the liquid manure cart touched upon a very important point. The getting into the rough leaf as every body knew, was the critical point in the growth of the turnip. If it hangs fire then it will never get over it. If the soil is very dry, so that the extremely minute and delicate roots of the young plant

cannot absorb any nutriment, and especially if the fly also make its appearance, the plant is then irretrievably lost. But if by any means sufficient moisture can be availed of to dissolve the manure in the soil, and convey it to the small roots; or if diluted liquid manure can be applied to answer that purpose, and so give the plant a start at the critical period, that is the great point to be looked to in the cultivation, after that all is required in proper hoeing and thinning. As to the mode of sowing, drill cultivation was undoubtedly the distinguishing feature of Agriculture at present; but he had known farmers in the south of England cultivate very successfully on the broad cast plan. He knew farmers there who sowed as much as 7lbs. of Swede turnip seed to the acre, so as to secure an abundance of plants, and thinned out into rows with the horse hoe afterwards. This plan had been followed on the same farms for the past fifty years by some who were called farmers of the old school, and a failure had never been experienced. As to the distance of the drills, that should be governed by the quality of the soil. In poor soil the plants should be closer together than in rich soil, because it was important to have the ground pretty well shaded by the tops as soon as possible. and the roots in poor soil did not require so much room to expand as in rich soil. As parsnips and carrots had been alluded to, he would state as one gentleman had remarked was the case in this country, that in England he had found it difficult to eradicate them from the ground after they were once sown. He would like to enquire of some of the gentlemen present what their experience had been as to the keeping qualities of Mangel Wurzel, as compared with turnips.

Several members replied to this point, the general opinion appearing to be in favor of Swedish turnips, as less liable to injury from frost, although it was admitted that if mangel could be secured untouched by frost, they would be in spring, and far advanced in summer, in much fresher and more succulent condition than turnips.

Some further conversation took place as to the best means of preserving roots during winter, and other points connected with the subject.

Mr. Fleming was glad to be able to state, from his knowledge of the fact as a seedsman, that the breadth of Swede turnips annually cultivated was rapidly increasing. Last year he had imported seed enough to sow 2000 acres, which was fifty times as much as would have been required a few years ago. Besides a great deal of seed was grown in the country.

The thanks of the Club were then voted to Capt. Beresford for his valuable paper.

The following gentlemen were then proposed and elected as new members:—

Hon. J. H. Price, Walter McKenzie, H. Quettin St. George, Andrew Ward, James Sanson, Jesse Thomson, Joseph Ross, Rd. Playter, Rice Lewis.

The Club then adjourned till Thursday, 19th inst. when Mr. R. Davis will read a paper on the "Comparative Physiology of Animal and Vegetable Structure."

Springhalt.—Mr Feron informs us, that this singular spasmodic affection is esteemed graceful in some continental countries; at least when it exists in both hinder legs, as it frequently does, being however usually confined to one side: very seldom indeed is it found in the fore, of which we have seen but one or two instances at the most. It is evidently a spasmodic contraction of some one or more of the flexors of the leg, which usually ceases after the animal is in motion; it is the consequence of local irritation or of pressure on some nervous fibrila, which the excitement of exercise renders less acute; and generally restores the action of the legs to its natural condition. It is not hereditary or congential, and seldom appears until the approach of the adult age. It is injurious inasmuch as it unfits the horse for certain purposes, as racing, delaying the start so long, as to give away every advantage. It is considered incurable; and therefore any and all treatment is useless, save for experiment.—*Exchange.*

Evil Company.—The following beautiful allegory is translated from the German:—"Sophronius, a wise teacher, would not suffer his daughter to associate with those whose conduct was not pure and upright. 'Dear father,' said the gentle Eulalia to him one day when he forbade her in company with the volatile Lucinda, 'you must think us very childish if you imagine we could be exposed to danger by it.' The father took in silence a dead coal from the hearth, and reached it to his daughter. 'It will not burn you, my child; take it.' Eulalia did so, and behold the beautiful white hand was soiled and blackened, and, as it chanced, her white dress also. 'We cannot be too careful in handling coals,' said Eulalia, in vexation. 'Yes, truly,' said the father; 'you see, my child, that coals, even if they do not burn, they blacken; so it is with the company of the vicious.'"

TOWNSHIP OF HAMILTON FARMERS' CLUB.

At a meeting of the Township of Hamilton Farmer's Club, held at Grieve's Hotel, Court House, on Saturday, January 31, 1857.

Matthew Forsyth, Esq., in the chair. Present, Messrs. Alcorn, Underwood, Wright, White, Ball, Bennett, Burnham, McDonald, Richardson, McMurray, Johnston, Brown, Roddick, Riddell, &c. &c.

Mr. Riddell read the following address on

CHEVIOT SHEEP.

Sheep are certainly among the most useful of the domestic animals. With them prosperity and industry are introduced into a country, and there is probably no animal that contributes so much to our comfort as the sheep, as there are few, or none of the inhabitants of our country from the highest to the lowest, who are not daily arrayed in some article of dress made from the cast off covering of a sheep. Besides in every house from the cottage to the palace they furnish the most comfortable articles of furniture.

From the earliest records of our race, we find man keeping flocks and herds, and in ancient times the keeping and tending sheep was the employment of Prince and Patriarch, of Priest and Prophet. It is not however sheep in general, but one particular variety to which I wish at this time to direct your attention, a variety which has not been extensively introduced here as yet, but which I feel assured, when their many valuable qualities become known, will yet be found suitable to us, especially to the higher and more hilly sections of the country. We shall proceed to notice very briefly the history —numbers—management—quality, &c., of the Cheviot Sheep.

History—From time immemorial the Cheviot hills have produced a breed of sheep of large carcase, and valuable fleece, which, combined with hardiness and endurance of privation second only to the Blackfaced heath breed is justly ranked as the most valuable mountain breed in the kingdom.

Previous to the middle of the eighteenth century they seem to have been confined to the mountanous districts of the two counties of Northumberland and Berwick—approaching nearly to the sea at the latter place and reaching inland perhaps thirty miles.

From that period they spread gradually westward, and they now occupy not only the grassy hills of the Border counties but nearly the whole range of hills which have often been called the Southern Highlands of Scotland. Before the beginning of the present century the Cheviot breed of sheep had spread over nearly all the south of Scotland, and had there supplanted the black-faced breed, and though there have been pauses in the progress, when from bad seasons the farmers were deterred from changing, yet it may be said on the whole, that it has been regular and steady; and now in the hilly districts from the east to the west coast of the south of Scotland, they constitute three-fourths of the breeding stock, the other fourth being Black-faced.

In the Highlands of Scotland, north of the Forth the introduction of Cheviots began only about the commencement of the present century, by the late Sir John Sinclair, but they were generally introduced by farmers from Northumberland and Roxburghshire who took leases of some of the large mountains famous in Sutherlandshire, they are now found in great force over large portions of the north and west Highlands, where they have thriven amazingly, and in the hands of some spirited breeders have attained to as great perfection as in their native district. Indeed some of the five year old ewes from Sutherlandshire are admitted to be better than any others in Scotland. The Cheviot sheep has likewise been introduced to portions of Ireland and Wales, and of late partially into the Cape of Good Hope where by crossing they probably increase the quantity and quality of the carcase and wool. And there seems no doubt from their hardihood and highly improved qualities for producing both mutton and wool, that they may yet spread with great advantage over many portions of both Europe and America.

The number of this breed is estimated by Mr. Stewart Hillside, (in a valuable paper on this breed prepared by him for the Paris exhibition) thus: "By the statistical report of 1854 the number of sheep in the counties south of the Forth amounts to 2,261,438, of these we estimate the Cheviot including the immediate progeny of Cheviot ewes by Leicester rams at three-fourths or about 1,900,000. And north of the Forth the whole number being 3,133,299, the portion of the Cheviot breed may be 1,500,000. And there

may be added of Cheviots in the four or five northern counties of England, breeding on the hills or feeding on the lower land, perhaps 300,000, total 3,700,000.

Management.—The breeding of Cheviot sheep is almost entirely confined to the hilly or uncultivated portions of the country which runs across Scotland. It comprehends the upper parts of the valleys and the hills on which the branches of the rivers take their rise, and the extent is nearly equal to the half of the country south of the Forth.

The farms extend in size from seven to eight hundred acres, up to seven or eight thousand acres, but in many cases one farmer holds several of these farms though detached from each other and his own residence. The farms are mostly rated by the number of scores of sheep they can keep, some of the very best may keep a sheep to the acre, but more commonly they keep a 1000 sheep on from 1200 to 1800 acres. One shepherd is kept for about every six hundred sheep, the shepherds are paid by having kept for them a certain number of sheep their own property (*which is called their pack*) with one or two cows and a quantity of oatmeal, as theirs is a very responsible situation, they are among the best paid of rural laborers.

The natural herbage on these sheep walks varies much both in quantity and quality. On some farms heath preponderates, and the grass for food among it is scanty. On other *bents* and green sward of a coarser or finer herbage covers the hills; and on the lower slopes or damp clay sub-soils, there is a coarse green growth which affords much sustenance, particularly in winter and spring this class of soils has been much improved of late years by open drains, a mixture of all these various soils and grasses is conducive to the health of the sheep. On most of these farms the sheep is kept all the year round, each sheep keeping within a small range, but in a few high situated farms, and in severe winters with heavy snows they have to be removed to some lower situated farms where there is little snow for a few weeks, this is called *flying*, and may happen once in seven years; neither is it now so common as formerly, as on these farms subject to such snows, sufficient hay is cut from the ground to keep the stock for several weeks. Loss by disease happens on all farms, though some lose much more than others. It may range from two to ten and more per cents. It may average exclusive of sucking lambs about five per cent. The loss of lambs in ordinary seasons is likewise about five per cent, but in bad springs and lambing time, or after severe stormy winters it may reach even more per cent.

The breeder of the Cheviot sheep seldom combines the occupation of feeding them for the butcher. This is left for the occupiers of arable farms on the lower grazing ground. The wether lambs are sold in the months of July and August, being then transferred to the low country grazier, who keeps the lambs on his young grass after the grain crops are cut till about November or the beginning of December when they are put on turnips, and sent fat to the butcher when from sixteen to twenty-one months old. Their weight then, when alive will run from 120 to 160 lbs. The four quarters of mutton weighing from 65 to 85 lbs. This is particularly the case in Cumberland where Cheviot lambs are preferred to all other breeds by the low country farmers and by whom they are managed with great skill and success. It is not at all unusual with them to realize an increase of twenty to twenty-five shillings per head on the purchase price of these lambs after a twelvemonths keep. This fact is peculiarly interesting from the proof which this affords of a hitherto unsuspected capacity in Cheviots and probably in other upland breeds to attain a profitable degree of fatness and weight of carcase at almost as early an age, as any lowland breed when the same attention and liberal feeding is bestowed upon them.

Liverpool is the principal market for such sheep but many are sent to Manchester, Newcastle, Edinburgh and Glasgow. No mutton is considered better or gives a higher price, the general rate for some late years for lots averaging say 72 lbs. the four quarters is about two pounds (sterling) or perhaps two guineas. The lambs will clip in June an average of five pounds of wool which gives nearly the highest price of any British wool, being fit for the same class of manufactures as south down wool.

Quality.—As the Cheviot sheep are unknown to some of us, I condense the following description of them from Morton's "Cyclopædia of Agriculture" where it is said they rank as the most valuable breed in the kingdom. "The Cheviots are destitute of horns in both sexes; the face and legs are white, though individuals occur in the purest flocks in which there are mottled gray—an indication as many allege of superior hardiness.

The head is erect, long, and clean; and while the neck and throat are well covered with wool, none must appear on the head. The eye is lively and prominent; the ears long, open, and well covered with hair. These different features combined, must exhibit

a fine, open, and sprightly countenance with every indication of hardiness. The legs are moderately long, clean and fine, the hind quarters full and well proportioned; the rumps full; the tail neatly set; well covered with wool."

There is a tendency to lightness in the fore quarters, though this is a defect which careful breeding is doing much to obviate. The neck and chest should be full; the ribs rounded, and well filled up behind the shoulder. The pelt thin, and covered with uniformly fine wool, free from dead hairs, coming well down on the quarters, forward on the neck, and completely covering the belly; the fleece weighs from three to four pounds; according to the nature of the pasture on which the sheep is raised. The character of the wool as well as of the carcase of the Cheviot sheep was considerably different during the last century from what it is now.—Quantity is now more eagerly sought than quality to raise the value of the wool, and the carcase has been brought to exhibit the features which was known to indicate early maturity; and a ready disposition to fatten. Hence, instead of the close staple of former times, denoting a fine but light fleece, that of the modern Cheviot has become longer and more open—considerable heavier, but somewhat coarser instead, also, of the low shoulder and rather narrow chest, the former has become better proportioned, and that developement of chest has been obtained which at once indicates a disposition to fatten, and a vigorous constitution—that grand desideratum in every domestic animal, thus the most valuable properties of the Cheviots have been obtained by an intelligent application of the true principles of breeding, without any mixture of foreign blood. This, indeed, was unnecessary; for the Cheviot being confessedly the most valuable mountain sheep, contained in itself the best material to work upon, while great danger was to be apprehended from any cross, which should produce the desired qualities at the expense of that hardiness of constitution, without which a breed is useless for stony hills."

While on this part of my subject I shall say a few words about the weight of the common Cheviot sheep, a friend who owns this class of sheep writes to me saying; that common hill fed sheep (that is with nothing but grass) will weigh 15 and 16 lbs. per quarter exclusive of tallow, and on the farms of Moolaw or Fingland or Cassock, they are commonly 20 and 21 lbs. per quarter, but these stocks are above an average, he further adds, Cheviot wethers killed at two years old, that have been fed on grass in summer and turnips in winter average from 24 to 26 lbs. per quarter, and their wool pulled from the pelt will weigh from 5 to 6 lbs. and their tallow from 10 to 12 lbs. and further that if they are kept to two and a half years old, say killed in August they, when fed on good clover grass, with a liberal allowance of crushed oats and oil cake they may be brought to weigh from 30 to 33 lbs. per quarter, and their wool pulled from the skin will then weigh from 7 to 8 lbs. At some of the Highland Societies shows Cheviot wethers three years old have been shown that weighed 40 lbs. per quarter, but these would be from the best stock, and of course with the most liberal feeding.

I have already dwelt too long on this subject, but before closing permit me to notice briefly the crossing of this class of sheep the crossing of the Cheviot ewe with improved Leicester ram, has within the last thirty years been carried to a great extent. When speaking of their management I neglected to state that the Cheviot ewe is never kept for breeding on hill stocks, after she is six years old, and it is to these ewes for the last crop of lambs, that the Leicester ram is put as the ewes are seldom used for breeding afterwards.

This has much enhanced the value of the Cheviot sheep as they are much hardier, and better nurses than the Leicester ewes, and their progeny produces as heavy, and finer mutton than the pure Leicester, this crossing is most extensive in the counties of Dumfries and Roxburghshires than any other, but it is general over all Scotland and the North of England. These half breed lambs (as they are called) are weaned in July and August, that is such of them as have not been already sold to the butchers, for they are extensively sold near towns, to supply the markets with lambs, the best sorts will then weigh 40 lb. of mutton, they are carefully kept on fine grass till October when they are put on turnips, and fed through winter, and are sent to market as they become fat, at from 60 to 80 lbs. mutton. In May or now even some times in April, those that are not already sold are clipped, the wool of the best sorts of cross at one year old will weigh about seven pounds of washed wool per fleece and sells as high as any British wool (at present 1s. 5d. to 1s. 6d. per lb. in average years 1s. 2d). The mutton of this cross sells nearly at as high a price as pure Cheviot, and about a penny per pound higher than the coarser Leicesters.

We have before us the sales of Cheviot Rams by four noted breeders, namely Mr. Aitchison, Mr. Borthwick, Mr. Bryden and Mr. Carruthers, the aggregate number of rams above one year old, sold by them was 557, the amount of sales was £4,761 6s., or at the rate of £8 11s. per head, about 100 of the best sheep gave from £15 to £25 and there are four gave from £50 to £99 sterling they show how highly the breed is appreciated in that country, and if equaled in Britain, it is only by the Leicesters and South downs, the two celebrated breeds which occupy the richer and more level lands of England.

If a good fair size, an excellent form, a good degree of early maturity though inferior in this respect to the Leicester, a constitutional hardiness equal to the necessities of our rigorous winters, a medium of fine wool, suitable for all family purposes, a disposition to fatten easily, a productiveness equal to any other breed, and a lightness of offal, be any recommendation, this breed possesses them in a high degree, and we think that they will be a great acquisition to this country both for a pure breed, and for the purpose of crossing.

I will only add that Cheviots have been imported into this neighborhood by Mr. William Roddick and likewise by Mr. James Dixon Clark.

Mr. P. R. Wright said, The question is simply this:—"Is such a breed of sheep as Mr. R. has described, suitable for this country? My opinion is, they possess no advantage over the improved Leicester and Gotswole, which in many respect they are much inferior to these justly celebrated breeds; in weight of fleece and carcase in early maturity and a disposition to fatten few will have the temerity to venture even a comparison, and their superiority in point of constitutional hardiness (even considering this questionable point) would not amount to much here, where housing and hand feeding half the year round is forced upon us;—For their *native* hill pastures, the Cheviots are no doubt unrivalled, so it is with the black-faced breed, in their Grampian Mountains; the Kylos in the western Highlands; the lordly short horn (born with a silver spoon in his mouth) luxuriating in the rich pastures of his native England, dozing a few mild winter months in a warm and well ventilated stable, each and all of these are extremely suitable for their respective localities—but neither would be profitable if—their position were reversed;—Canada can never be a great sheep growing country, we want the genial climate of Australia for the production of fine wool, and the Grampian Hills for rearing cheap and *good* mutton; our object ought to be, to obtain a stock of sheep suited to our circumstances, and these of a kind which will produce the largest returns to the possessors;—Farmers like other men, are prone to be over sanguine, and are sometimes led away, by exaggerated statements of the benefits of newly introduced improvements, instead of narrowly watching the results, or considering whether they are at all adapted to their particular localities;—I think it will be evident to most farmers, at any rate to those who have any experience in the matter, that the wintering of sheep entails most part the expense, both as regards labour and feed, and as we are compelled to bestow this extra care, it is wise to do so on animals which return the most wool and mutton, and they are unquestionably the improved Leicester and Cotswold; fashionable epicures may prate about the superior mutton of the south-downs, cheviots, or black-faces, but it will be some time yet before such sensibility of taste be general in cold Canada!—In regard to crossing one pure breed with another, the practice cannot be too strongly condemned; this was not the way "Bakewell" went to work, nor is it the cause of the improvement in the modern cheviot "selection," has been the renovator in both cases, and in skilful hands is amply sufficient; true, the Cheviot breeds cross with the Leicester ram, with the sole view of *selling* the cross at an *early* age, thus furnishing conclusive proof of the superiority of Leicesters in that important quality; crossing Leicester Ewes with a Cheviot Ram has never been done by sheep farmers whose example or advice it would be safe or prudent to follow.

Mr. Underwood observed—I agree to what Mr. Riddell has said concerning the Cheviots. I am glad to see them imported into this country, as I am confident they will answer very well, they are easily kept and hardy to stand the winter, I have lived among some of the best breeders of that class in Scotland; as for the Leicesters I cannot say much about them, as I never saw a flock of them together at home.

Mr. McDonald agreed to what Mr. Riddell had said concerning the Cheviots. He thought their mutton was before the Leicester, but he did not think they were as heavy, and would prefer the Leicesters, although a cross might answer very well.

Mr. Ball said he could say very little about the Cheviots, as his experience had been

with the native breed and the Leicesters. He thought he would prefer the Leicesters, as they were the largest he found when travelling in England lately; the Cotswolds were preferred; or a cross between the Cotswolds and the South-downs, which made a fine large sheep. I think as we have to feed them all winter, we may as well keep a large sheep as a small one.

Mr. Richardson said he would not like to say anything against the Leicesters, but he thought the Cheviots would answer well, he had five ewes at Mr. Roddick's Cheviot ram last season, and he thought them the finest lambs he had ever seen, indeed every one that saw them said they were very good; if he had the chance he would prefer putting them to the same ram again.

Mr. G. Roddick said, although he was a breeder of Leicesters himself, he approved of the Cheviots as they were hardy and easily kept. He had no doubt they could keep three Cheviots for two Leicesters, no doubt they are better to be well kept; he thought them a suitable breed for this country, he intended to get into a breed of them as soon as possible.

Mr. Alcorn said he had no experience of Cheviot sheep, as his were all improved Leicesters, but he thought they should be kept pure, and not crossed, as he thought the pure breeds best. After what they had heard from Mr. Riddell he thought little more could be said.

Mr. G. Underwood said—I think Mr. Riddell has set forth the qualities of Cheviots better than I can. I have been all my life amongst the Cheviots, I would prefer them before the Leicesters as they are hardier, and as we have a cold winter I am confident they will answer well. I am happy to see them come into the country; the Cheviots have been considered as a wild race, but when brought into fields they are as tame as other sheep.

Mr. Pratt said he greatly approved of the Leicester, although Cheviots were a breed he was not acquainted with, seeing we have to house our sheep in winter he liked a good large one, one that would have both a large carcase and a large fleece, he was afraid that they would be troublesome on our fences.

A vote of thanks was given to Mr. Riddell for his excellent address.

W. ALCORN, Secretary.

"OUR FRANK."

It was a costly marble,
The fragrant sod that graced;
And on the polished tablet
Two simple words were traced.
I brushed aside a rose-vine
That shadowed o'er the dead,
And read the brief inscription:
"Our Frank!" was all it said.

But O! how much of sorrow
That little sentence told!
I knew some smiling cherub
Lay 'neath that marble cold.
I knew in some sad household
There stood a vacant chair;
And that a voice was silent,
That once made music there.

And O! the smile of beauty,
That sweetly beamed of yore,
Had faded from their hearthstone,
To be its light no more.

I knew, too, there were playthings
Laid by with tender care,
And tear-stains on the garments
The loved one used to wear.

Perhaps his childish tracing
Was still upon the wall,
His little hat and mantle
Yet hanging in the hall.
My heart was full of sorrow,
My eyes with tear-drops dim,
Thinking how deep the heart-grief
Of those who mourned for him.

And as I turned in sadness,
My eyes a cherub met,
Whose fairy form and features
Are in my vision yet.
I clasped him to my bosom,
With love's ecstatic thrill,
And blessed the sovereign Giver,
Our Frank was with us still.

Cure for Chilblains.—To cure chilblains, simply bathe the parts affected in the liquor in which potatoes have been boiled, at as high a temperature as can be borne. On the first appearance of the ailment, indicated by inflammation and irritation, this bath affords almost immediate relief. In the more advanced stages repetition prevents breaking out, followed by a certain cure, and an occasional adoption will operate against a return, even during the severest frost.

THE COST OF MANURE—WHAT IS TO BE DONE?

Although artificial manures are as yet but little used in Canada, the time will soon come when they will be sought after with considerable anxiety. Our best soils are being rapidly, and in many cases, *recklessly*, exhausted of their fertility. The ordinary sources of supply can not make good the exhausted elements, and, therefore, artificial or imported manures must be obtained, or lands will go out of cultivation. In England, millions are paid, yearly, for Guano and other manures, imported or manufactured elsewhere than upon the farm. We notice that a "rise of prices" in manures is treated by the English agricultural journals, as a matter of even greater importance to the farming interest than a *fall* of prices in breadstuffs. Gibbs & Co., the great dealers in Guano, have announced a rise of £2 per ton in their future importations of that almost indispensable manure. The alleged reason is, the limited quantity of the article and its rapid diminution. This announcement comes like a thunder clap upon the English farmer. The *Mark Lane Express*, and other agricultural journals, call loudly upon the Government to make search for other Islands, from which this invaluable deposit—more valuable than gold—may be obtained. The hopes once entertained, that a valuable manure might be manufactured from the Sewage of large towns, seem to be abandoned. If the Sewage could be transported to the field and applied in its fluid state, without detriment to the public health, it would, no doubt, prove a most valuable manure. But when deodorized by milk of lime,—the most available substance for that purpose—it loses its ammonia and becomes, comparatively, valueless. The Sewage Commissioners of London, after various experiments, have concluded to empty the fertilizing sewage of that immense city into the Thames, rather than to risk the public health by collecting and disposing of it to the farmers as a manure.

In the middle and Southern States, large quantities of Guano and other special manures have been used within the last half dozen years.

The Rural *New Yorker* states that "*eleven million* dollars are expended in the United States, for one variety of imported manure in a single season!" This manure is guano. It has been found useful in the worn out fields of the southern section of the United States, as a dressing of it will in most instances there produce a pretty fair crop when nothing at all would have grown had nothing been applied. It is certainly a liberal expenditure. But a serious question arises—how long can such a state of things continue? The guano thus used does not seem to conduce to a permanent fertility. This, therefore, does not seem to be good husbandry, for good husbandry will aim at and ultimately effect the permanent fertility of exhausted fields. Again, it cannot last forever, for the guano islands will in time become exhausted, even if others are discovered. It may not take place in this generation. The expenditure therefore, must be looked upon as a tax for momentary relief, not as a thorough cure for the evil; and yet it might aid essentially to a new system of operations,—might give a spring, a first impulse to the efforts of permanent improvement, if those who use it would be wise and properly preserve the grain of fertility, however small it may be, and use the strength thus gained for the collection of still more.

The Editor of the *Rural* reads a lecture to those who neglect this all important branch of good farming, and such are to be found all over the continent. They are not confined to the class of guano buyers. "Not one farmer in ten," says he, "collects the manure that he might, and not one in fifty gives to this product the care and attention he should. Agriculturists toil with all the energy possessed by them—work is made the equivalent of a profitable crop, and the only means by which such labor can be made to pay, saving

every thing that will enrich and invigorate the soil, is overlooked almost altogether," and he asks this important question: "If an improper and wasteful system of agriculture imposes an annual tax of eleven million dollars for the supply of food to impoverished land in only a portion of the Union, to what immensity will this sum grow when the entire country needs supplies commensurate with its extent of surface?" Let the farmer ponder upon this question and resolve, and by practice prove the sincerity of his resolves, that, as far as his labors will go, this necessity shall not come. That the spot of land on which he operates shall not become poorer, but that by care in collecting fertilizers, by skill and knowledge in applying them, his farm shall be more and more productive as long as he shall till it.

FARM WORK.

It is a matter of great importance to the farmer, that he should lay out the work of the season before hand, and now is the time to do it. We need much more thorough system in our farming operations. Determine upon the fields you will cultivate, and what shall be allotted to oats, corn, rye, wheat, buckwheat, potatoes, and other root crops; what walls shall be reset, and what ditches shall be dug; and how much labour will be needed to accomplish the work. Leave nothing to be decided upon in haste. A great deal of time and mental labour will be saved, by making your plans deliberately at the beginning of the year. If there are doubtful matters, consult the best farmer in your neighbourhood, and give his opinion due weight in your decision. A neighbour's experience will often save a useless expenditure of money and labour. When your plans are laid, carry them out, month by month, and week by week, until the year is completed. If you need capital for your legitimate business, hire it. You can as well afford to pay interest for this purpose as well as any other business man. Turn not aside to speculation in any thing that you do not understand. Glory in the farm and live by it.

To Sweeten Rancid Butter.—An agriculturist, near Brussels, in Europe, having succeeded in removing the bad smell and disagreeable taste of some butter by beating or mixing it with chloride of lime, he was encouraged by this happy result to continue his experiments by trying them upon butter so rancid as to be past use; and he has restored to butter, the odor and taste which was insupportable to all, the sweetness of fresh butter. This operation is extremely simple and practicable for all. It consists in beating the butter in a sufficient quantity of water, into which had been mixed 25 or 30 drops of chloride of lime to two pounds of butter. After having brought all its parts in contact with the water, it may be left for an hour or two; afterwards withdrawn and washed anew in fresh water. The chloride of lime used, having nothing injurious in it, can safely be increased; but after having verified the experiment, it was found that 25 or 30 drops to two and a half pounds of butter, were sufficient.

Cement to Mend Earthen and Glass Ware.—The cement sold about the country as a great secret, is nothing more than shellac, melted and drawn out into sticks. Heat the article a little above boiling water heat, and apply a thin coating on both surfaces of the broken vessel, and when cold it will be as strong as it was originally.

To protect Hens from Vermin.—It is said that *pennyroyal*, woven into their nests, will perfectly and certainly protect hens from the annoyance of vermin. Some poultry raisers make the nests entirely of this strong-scented herb.

Asparagus Beds.—A good depth of soil is necessary—say from 2½ to 3 feet—well enriched with rotten farm yard manure. Thorough and effectual drainage should also be provided. Early in every spring apply a dressing of salt, to the extent of one or two pounds to each square yard. An additional dressing of rotten stable manure should also sometimes be given. Asparagus is a marine plant; hence an occasional application of salt should by no means be omitted.

Enrich the Soil.—It should be the object of every tiller of the soil to leave his land in good condition after the removal of a crop, and, at the same time, obtain as remunerating returns as possible. This can be done only by husbanding all the sources of fertility upon the farm and adding thereto in every available manner. This is the Alpha and Omega of progressive agriculture.

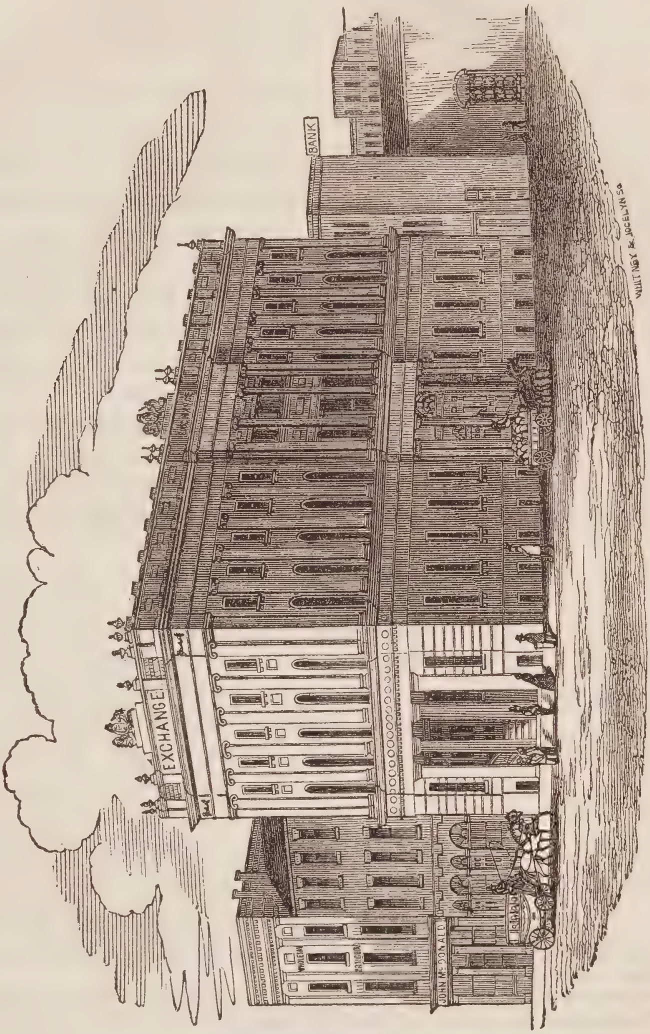
DEATH OF WM. EVANS, ESQ.

It is our painful duty to record the death of this esteemed individual, who was so long and favourably known as a zealous promoter of Agriculture in Lower Canada. Mr. Evans had been, we believe, connected with this important interest in Canada for upwards of forty years, during which he devoted himself with untiring energy to the advancement of the agriculture of his adopted country. His treatise upon Canadian Agriculture published many years ago, was a means of awakening a spirit for improvement, and of attracting attention to the undeveloped resources of the Province; while his pen did much for the same object through the periodical press. He has gone from among us full of years and good works. The following notice in the *Montreal Gazette* was evidently by one capable of appreciating the worth and character of the deceased:—

"We are deeply pained to announce to-day the death of W. Evans, Esq., the venerable Secretary of the Agricultural Society for Lower Canada. It has been our fortune to meet few worthier or more patriotic men than he, few more diligent in the promotion to the uttermost of his ability the prosperity of this his adopted country. Enthusiastically devoted to Agricultural pursuits, it has been his endeavour for many years past to raise the standard of Agriculture in Lower Canada from the position to which it had sunk, to teach and to lead the way in a system by which the worn out farms of the long settled districts might recover their fertility, and farming in the Eastern Province be made to rival in profitableness that of the West. Nor have his efforts been altogether in vain we hope. He has spent over twoscore years, we believe, as an Agriculturist in Canada. Long ago, he furnished agricultural contributions to the columns of this journal. Afterwards he became Secretary of the Lower Canada Agricultural Society and editor of the Agricultural journal published under the auspices of that Society. Lately having retired from the direction of that journal, he renewed his connection as a contributor with this paper,—a connection only now dissolved by death. Elsewhere will be found his last communication, addressed to us a few days since, and crowded out of our columns until now, when the brain that conceived and the fingers which wrote it have alike ceased to have life or motion. How touching are its concluding sentences now, in which, promising to resume the review of Mr Nesbitt's lecture, he says:—"I cannot now expect that I shall be spared many years to continue these labours, but while it may be the will of God to spare me, I shall persevere in the good cause of endeavouring to promote the improvement of agriculture in Canada." Alas! even as he wrote, his vow was fulfilled; the span of life allotted him by his Maker was even then coming to an end. We have not learned the immediate cause of his death, which must have been somewhat sudden, though he has been ailing for some time, and suffering much. We are aware that during the early part of the autumn he suffered from an attack of paralysis, which he spoke of to us as a warning that 'he had not long to stay.' He was fitted and prepared, we believe, for the long, long journey he has taken. Full of years, enjoying the esteem of all who knew him, and surrounded by a large circle of tried friends, he has passed peacefully away: a man whom many loved while living, many will regret in his death; one who strove faithfully to do his duty in that state of life to which it had pleased God to call him."

Simple Cure for Croup.—When a child is taken with croup, and a physician cannot immediately be had, let the mother instantly apply cold water, (ice water if possible,) suddenly and freely to the chest and neck with a sponge. The breathing will almost immediately be relieved. So soon as possible, let the sufferer drink as much as it can; then wipe it dry, cover it up warm, and soon a quiet slumber will relieve the parent's anxiety, and lead the heart in thankfulness to the Power which has given to the pure gushing fountain such medicinal qualities.

Smoking Hams.—To do this, the smoke house must be well ventilated at the top, the hams hung at least ten feet above the fire, and the smoke given out in moderate quantity, and issuing from the burning of corn cobs, or hickory wood. It is important that the hams be kept cool and dry through the whole operation. Proper ventilation of the smoke house insures this; if they be kept moist by improper ventilation, or are placed so near the fire as to become warm, it greatly injures their flavor.



THE TORONTO EXCHANGE.

We present our readers with a view of the Toronto "Exchange," erected in 1855, by the Merchants, Millers, and Brokers of the city and surrounding country, for the convenience of barter and exchange, in wheat, flour, stocks, &c. It is a plain, but neat and substantial structure, and is situated on the corner of Wellington and Berczy Streets, on the site of the old Post Office. It cost, for building and site, £15,724, and is well worth the notice of Merchants, Millers and Farmers, when visiting Toronto. It contains the Telegraph Offices, News Room, Board of Trade Rooms, Brokers' Offices, Exchange Room, &c., and is therefore the head-quarters of trade, especially in those products which come from the soil.

TWINS—FREE MARTINS—ENQUIRY.

To the Editor of the Canadian Agriculturist.

Toronto, 17th February, 1857.

Dear Sir,—A brood mare of mine had twins last Spring, a Colt and a Filly; and the question has lately been discussed amongst my friends, whether either of them will ever be of any service for breeding purposes? Some people maintain that the Filly will never breed; others, again, say that *neither* of them will be of any use for that purpose. In Mr. Stephen's Book of the Farm, I find the following observation in respect to twin calves; but whether the same rule applies to twin colts, I am not aware. Mr. Stephen says—"A heifer calf of twins of bull and heifer calves is a *free martin*, and never produces young, but exhibits no marks of a hybrid or mule."

Now, Sir, will you be so good as to give me your views on this interestiug subject? As these colts are remarkahly fine, and it being my present intention to raise the Colt as he is, in consequence of his showing so many excellent points every day, I feel more interested in the solution of this question than perhaps I otherwise would.

I am, dear Sir, &c., S. B. S.

Remarks. —We mentioned the subject of the above enquiry at a recent meeting of the Central Agricultural and Horticultural Club, and asked the opinion of the members on the point. There were were several gentlemen experienced in breeding, &c., present, but no case of barrenness, from the cause mentioned, could be cited as to horses. In the case of cattle, opinion was divided. Instances were mentioned where twins, male and female, had both proved prolific. But *generally*, the statement of Mr. Stephens was confirmed. We cannot speak from our own knowledge, except in the case of the genus *homo*, where, so far as our experience goes, there appears to be no impediment. Perhaps some of our correspondents may be able to answer the enquiry of S. B. S. from their own observation.

Hot Water for House Plants.—A correspondent of the *Boston Cultivator*, writing of the management of house plants says:

The way to have healthy plants is to shorten in all straggling growth, and remove every leaf and flower as soon as the least symptom of decay is perceivable, washing them occasionally with warm water from the fine nose of a watering pot held high above them, thus giving them the benefit of a warm shower at any time or place.

But the thing of all others important, is to water them with warm water at all times; yes, hot to the touch, even beyond what is supposed to be prudent—and it is only necessary to watch the result on the health and vigor of the plants, especially when in bloom, to be convinced of this "grand specific."

The writer says he has fuchias now in bloom, mere cuttings about six inches in height, not one failing out of seven, or even more cuttings, planted in a single pot and watered with hot water.

Recipe for Mending Broken China.—Take a very thick solution of gum arabic in water, and stir into it plaster of Paris until the mixture becomes a viscous paste. Apply it with a brush to the fractured edges, and stick them together. In three days the article cannot again be broken in the same place. The whiteness of the cement renders it doubly valuable.

TILES—DRAINING—PRICES, &c.

To the Editor of the Agriculturist.

February, 17th, 1857.

SIR,—Would you be kind enough to inform me in one of your coming numbers, at what price Draining Tile can be furnished at the Kiln? what sizes are suitable for underdraining land? the number used for laying a rod; and what the total cost of underdraining in this manner should be? also, whose machines are the best for making them?

Many farmers in this neighbourhood would use tile extensively, if they could be got at a reasonable rate; and it has been proposed to try and establish a manufactory of them somewhere along the line of the Northern Railway. Any respectable man, who could be depended on, could get orders for a large quantity to be ready for draining wheat lands this summer; and in connection with brick-making it would doubtless pay. I have drained a considerable number of acres last summer, using cedar rails and slabs, cutting the drain three feet deep, but would much rather use tile, and make a more permanent job of it.—Yours truly, "EAST GWILLIMBURY."

Remarks.—We refer our correspondent to the advertisement of Mr. William Lea, of the "Strawberry Hill Works," which appears in the present issue. Mr. Lea has reduced the prices of Tile nearly 20 per cent. since last season. His two-inch pipe tile, suitable for field draining, are furnished as low as at most of the establishments in the adjoining State, where the demand is much larger than it is, or will be for some time, in Canada. We have endeavoured to impress on Mr. Lea the importance of reducing his prices to the lowest paying point; we believe he has done so, and we hope the farmers will encourage him in his undertaking. One thousand ($10 worth) will lay 60 rods of drain, and, if properly placed, will last an age. The cost of opening the ditch will depend upon the price of labour, the process adopted, skill of workmen, &c. We can give no rule that would hold generally. The best machine with which we are acquainted, is Scragg's; cost about £50.

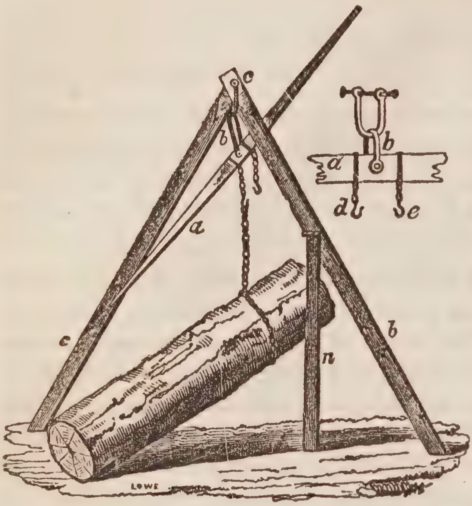
LABOR—AN ODE, BY G. W. B.

Toil swings the axe, and forests bow;
The seeds break out in radiant bloom,
Rich harvests smile behind the plough,
And cities cluster round the loom;
Where towering domes and tapering spires
Adorn the vale and crown the hill,
Stout Labor lights its beacon fires,
And plumes with smoke the forge and mill.

The monarch oak, the woodland's pride,
Whose trunk is seamed with lightning scars,
Toil launches on the restless tide,
And there unrolls the flag of stars;
The engine with its lungs of flame,
And ribs of brass and joints of steel,
From Labor's plastic fingers came,
With sobbing valve and whirling wheel.

'Tis Labor works the magic press,
And turns the crank in hives of toil,
And beckons angels down to bless
Industrious hands on sea and soil.
Here sunbrowned toil, with shining spade,
Links lake to lake with silver ties,
Strung thick with palaces of trade,
And temples towering to the skies.

HOISTING MACHINE.



The above is a cheap, but powerful machine, for raising logs or other heavy bodies a short distance. It will be found very convenient about a saw-mill for loading logs upon a waggon or truck. It consists, as the reader will see, of two pieces of strong scantling, connected together by a clevis. A short brace *n*, is attached to one of the legs, to keep the machine upright, while being made fast to the log. The power is obtained from the lever *a*, which power can be increased, either by increasing the length of the lever, or by shortening the distance between the short chains *d*, *e*, and the clevis, or fulcrum *b*. The mode of operating will be seen at a glance. By depressing one end of the lever, the short chain on that side will be brought down towards the weight to be lifted; it is then hooked into the chain attached to the weight, and by reversing the lever the weight is raised, and the opposite chain made slack; and so on until the object is attained.

TESTIMONIAL TO ROBERT RUSSELL, ESQ., KILWHISS, FIFESHIRE.

We learn from the *Fife Herald*, that at a recent meeting of the Trafalgar Agricultural Society, of which Mr. Russell has for several years been the Secretary, a valuable piece of Plate was presented to that gentleman, as a token of gratitude for his efficient services.

Mr. Russell is favourably known on this side the Atlantic. Many of our readers will recollect him when we state that he attended our Provincial Show at London, in 1854; acted in the capacity of a Judge on Implements; and took part in the Agricultural discussion in the Court-House. Subsequently he spent several months in the United States, and delivered a course of lectures on Meteorology in the Smithsonian Institution. Mr. Russell combines with a correct knowledge of scientific, an enlarged acquaintance with the best systems of practical agriculture. Since his return to Scotland, he has contributed several very interesting and elaborate papers to the Journal of the Highland Society, embracing subjects of much scientific and practical interest; some of them touching on matters pertaining to this Continent.

The Chaitman, on presenting the testimonial, concluded in these words—

"We are proud of Mr. Russell as our Secretary. He is known to you all, and known to the whole agricultural world. We have lost one eminent agriculturist, and it becomes us therefore to value all the more highly those men who yet shine out amongst us. Mr. Russell, though a young man, has a world-wide fame. He is known to the leading men

of science, on both sides of the Atlantic. I will not attempt to say more. He does honor to us, and we do honour to ourselves in recognising his services."

The plate, which consisted of a silver salver and jug of rich and elaborate manufacture' was displayed upon the table. The salver bore the following inscription—" Presented to Robert Russell, Esq., farmer, Kilwhiss, by the members of the Trafalgar Agricultural Society, in testimony of their unanimous and grateful sense of the zeal, scientific knowledge, practical sagacity, and uniform courtesy, with which, as their Secretary, he has for a long period so successfully connected the business of the Society and led its discussions, extending its efficiency as an instrument for the advancement of science. Trafalgar, 21st October, 1856."

Mr. Russell, after returning the customary thanks, &c., remarked—

" By acting in the capacity of Secretary to this Society, I have enjoyed a closer friendship with many of its members than I perhaps otherwise would have done, and I have thus reaped much benefit in coming in contact with those who know their profession so well, and who are ever ready to communicate ; and, indeed, there is not a more interesting agricultural district in Scotland for variety of soil than the one which embraces the farms which you occupy. In studying the principles of agriculture, I have tried to gather up your maxims that are founded on long experience, to learn their meaning, and to translate them into the technical language of science. Agriculture has already derived great benefit from a knowledge of principles, which is the only means that can lead us to true economy in the art; for more empirical dicta sometimes confound cause and effect, and they are also apt to mislead when conditions are changed."

CEMENT WATER PIPES.

Excellent and cheap pipes for conveying water, may be easily and cheaply made of Hydraulic Cement mixed in the same manner as when used for making cisterns. Any one can make these pipes. We have frequently directed their construction successfully, and presume we can direct our readers.

Having a ditch wide enough for a man to walk in, and deep enough to be secure from frost, leaving the bottom with a concave excavation in the centre according to the size of the pipe required, put mortar in the concave sufficient in quantity and quality to make the bottom of the pipe from three-quarters to one inch thick, and three feet in length. In this mortar bed a rod, made smooth and true, with a slight taper, about three feet long, when more mortar may be put on this rod, rounded up with a trowel, to correspond in thickness with the bottom ; then carefully draw out the rod, spread more mortar for three feet more in the bottom of the groove as before, insert the end of the rod in the pipe previously made, bed the rod in the mortar, cover over and draw out again, and so on till the pipe is completed.

The mortar should be fresh mixed, a little a time, so that the cement may set as quick as possible: mix one part of cement to two or three of *clean coarse sand*. If it contains some fine gravel, from the size of wheat kernels to beans, no matter. The thickness of the pipe should correspond to the amount of pressure it will be required to contain. If only two feet pressure is required, water may be admitted in two weeks; in three or four months, a pipe one inch and a half in diameter will bear a pressage equal to twelve or thirteen feet perpendicular. This pipe will grow stronger for a year, when it will be like a rock in solidity and strength.

These pipes are admirably adapted for carrying water from eave-trough spouts to cisterns, and for carrying water in any other situations where no very great amount of pressure is required immediately after they are made. Very frequently in placing hydraulic rams, a short lead pipe next the ram will overcome the greatest elevation, reaching a short distance to the top of a bank, after which for a long distance, the pipe is nearly horizontal, and has much pressure to resist, when it may as well be made in this cheap manner of cement. And for purposes of irrigation, when it is desired to convey water nearly in a horizontal direction, as from one reservoir or elevation to another, and where no very great amount of pressure will be required, the cement pipe is admirably adapted.—*Country Gentleman.*

USES OF SNOW.

We are indebted to the New England *Farmer*, one of our most valued exchanges, for the following remarks on the uses of snow—a subject of interest to Canadian readers, for they are usually well supplied with the article:—

In this community, where the people are trained to believe that there is a wise purpose to be accomplished by all the phenomena of nature—the religious as well as the philosophical mind is curious to search out the advantages to be derived from them. The beneficent influence of rain, by giving moisture to the earth and purifying the atmosphere, is apparent to all. But *the uses of snow* are less obvious, though it truly is one of the greatest blessings of Providence. Our readers will recollect the unprecedented quantities of snow that fell during the last winter; let us carefully note some of the phenomena that attended it. Through this uniform mass of snow, which fell simultaneously over the whole North American continent above the latitude of 36°, the heat of the earth's surface could not escape, being confined as by a thick blanket. Hence a nearly uniform degree of cold suddenly pervaded all this large extent of territory, because the atmosphere was no longer warmed by the radiation of heat from the earth's surface. The principal sources of heat were from the region south of the snow-clad territory, and from the ocean; but the currents from the north, containing a dense and heavier atmosphere, were sufficient to overpower any current that might pass against them from any other direction. Hence snow-storm followed upon snow-storm, until the winds from the ocean were reduced to ne rly the same temperature with the overland atmosphere, and were exhausted of their superfluous moisture. By this time such a mass of snow covered the whole continent, as to make it evident that the power of the sun's rays in the spring must be present, before it could be melted away.

The first apparent consequence of this body of snow was the uniform cold temperature of the weather that prvailed. There were no sudden changes, as usual, from thawing, mildness to extreme cold. One unchangeable temperature but a few degrees above zero prevailed throughout the winter. The wisdom of physicians and the common sense of mankind agree in considering this uniformity of temperature as highly favourable to health. Colds, fevers and consumptions are always the most prevalent in a changeable climate, and during a changeable season. Hence it has been lately thought by some physicians that consumptive patients would do better to spend their winters in Canada than in Georgia. Last winter, was healthy, because the weather, though severely cold, was even; and this evenness was the effect of the universal coveriug of snow. The heat that would have ascended from the earth was shut in; and the rays of the sun could not produce an extraordinary amount of heat, because they acted only upon a bright reflecting surface. Thus it is evident that a general covering of snow is favorable to health by promoting an evenness of temperature.

Let us look still deeper for other advantages. Let us consider whether its action is favorable or unfavourable to vegetation, during the following seedtime and harvest. It is evident that the surface of the earth cannot well be robed of so much heat as escapes from it in open winters. This should be made clear by a process of reasoning on chemical principles, as we will soon attempt to prove in the language of Count Rumford, who took a great deal of pains to investigate this subject. It was delared by workmen who were employed in excavating underneath the snow, that the earth which is usually penetrated by frost to the depth of 10 or 12 inches, was last winter observed only by a mere incrustation. Indeed, we observed this more than once ourselves.

"The snows," says Count Rumford, "which cover the surface of the earth in winter, in high latitudes, are doubtless designed by an all provident Creator, as a garment to defend it against the pircing winds from the polar regions which prevail during the cold season.

"The winds, notwithstanding the vast tracts of continent over which they blow, retain their sharpness, as long as the ground they pass over is covered with snow; and it is not till meeting with the ocean, that they acquire, from a contact with its waters, the heat which the snows prevent their acquiring from the earth, the edge of their coldness is taken off, and they gradually die away and are lost.

"The winds are always found to be much colder when the ground is covered with snow than when it is bare, and this extraordinary coldness is by many supposed to be commu-

nicated to the air by snow; but this is an erroneous opinion: for these winds are in general much colder than the snow itself. They retain their coldness, *because the snow prevents them from being warmed at the expense of the earth*; and this is a striking proof of the use of snows, in preserving the heat of the earth during the winter in cold latitudes.

"It is remarkable that these winds seldom blow from the poles directly towards the equator, but from the land towards the sea. Upon the eastern coast of North America, the cold winds come from the north-west; but upon the western coast of Europe, they blow from the north-east.

"That they should blow towards those parts where they can most easily acquire that heat they are in search of, (in the efforts of nature to produce an atmospheric equilibrium) is not extraordinary; and that they should gradually cease to die away upon being warmed by contact with the waters of the ocean, is likewise agreeable to the nature and causes of their motion; and if I might be allowed a conjecture, respecting the principal use of the seas, or the reason why the proportion of water upon the surface of our globe is so great compared to that of the land, it is to maintain a more equal temperature in the different climates, by heating or cooling the winds, which at certain periods blow from the great continents."—*Essays.*

As an illustration of the truth of this remark by the learned and observing Count, the farmer, all through New England, might point to his young fruit trees, most of them *leaning to the east*, by the prevailing and strong north-west winds, which give them that tendency before their roots have taken sufficient hold to keep them in an upright position Some careful persons place props on the easterly side of choice trees to prevent their getting out of the perpendicular. It ought to be some compensation to the orchadist who sees his trees a little out of shape, to remember that the winds are on errands of love, and will faithfully perform their mission, though they may touch him a little rudely as they pass.

There are many speies of plants that vegetate under the snow, in high northern latitudes. Among these may be found the land moss. "This moss," says Dr. Darwin, "vegetates beneath the snow, where the degree of heat is always about 40°: that is in the middle between the freezing point and the summer heat of the earth: and is for many months the sole food of the reindeer, who dig furrows in the snow to find it, and as the milk and flesh of this animal are almost the only sustenance which can be procured during the long winters of the higher latitudes, this moss may be said to support some millions of mankind."

But in our own latitude, when the snow fall so early as to cover the earth before it has become frozen, all the perennial plants slowly vegetate under the snow; their roots send some new rootlets into the earth, and are thus prepared to vegetate with extraordinary quickness, on the arrival of spring. The rapidity of vegetation that occurs on the melting of the snows in the arctic regions is undoubtedly attributable to this cause; and not to the sever cold to which they have been exposed. The plants during winter, while covered with a deep bed of snow, are constantly increasing in vitality; but when exposed as in open winters in our own latitude, to alternate freezing and thawing, the plants become exhausted of their vitality, and when spring opens, they vegetate slowly, because they cannot all at once recover from the injuries they have received from alternate heat and cold.

This explains why our winter grains—such as wheat and rye—usually flourish so well after a winter when the ground has been constantly covered with snow; for as we have already observed, the plants have been all the time increasing in vitality, and when exposed in the spring, are green, vigorous, and start at once into a rapid growth. Some critical observers have also thought that young fruit trees, during such a winter, continue more plump, and are in better condition in the spring. It is certain that the sharp winter winds rob some plants of their moisture, and that slightly covering half-hardy shrubs, and such fruit plants, as the raspberry and blackberry, with leaves or earth, has the same effect as a covering of snow.

It is not unusual in our climate for quails and partridges to be buried in the snow, sometimes during several days; in this way they are preserved from the severity of the storm while it continues; after which they emerge into the light and air. Sometimes a thick incrustation of ice upon the surface prevents their escape and causes them to perish. These are a few of *the uses and influences of Snow*—but the subject is worthy of further and careful consideration.

MR. SOTHAM, AND HIS CRITICISMS.

To the Editor of the Canadian Agriculturist.

Whitby, 17th Feb. 1857.

Dear Sir,—On perusing Mr. Sotham's letter which appeared in the Feb. No., it struck me forcibly that—Canadian agriculturists in general, and the Messrs. Miller in particular, may justly congratulate themselves, and feel proud that there are in Canada "Short Horn" cattle worthy of the commendation and praise bestowed on them by a judge and breeder so distinguished and infallible as Mr. Sotham, Oswego, Tioga Co., New York. One whose former opinions as expressed in the *Agriculturist* were wholly antagonistic to that breed. Surely all sensible people will agree that it is incumbent on the Directors of the Board of Agriculture to make every possible endeavor to induce Mr. Sotham to come over to Canada, and kindly instruct "novice judges," breeders, and editors in the mysteries of the art, so that wisdom may not die with him. As to his remarks on Mr. Miller's bull with the "Leathery Skin," he may have forgot, at the time, that the powerful rays of a summer sun serve as an excellent substitute for the ordinary tanning process. And although Mr. S. seems doubtful if Mr. M. has judgment to select a proper male for his fine female stock; so that his progeny would enable him to rank as a first class breeder, still, he may have learned by experience that males, when tampered, often prove impotent—thence the trough of "Leathery Skin" may not have received the same attention as some of the others. Should Mr. S. be prevailed upon to come over, by an urgent appeal to his philanthropy, backed by something more tangible, he will confer an everlasting benefit upon us—and I will frankly give up my favorite oxen "Buck and Bright" to the pinching inspection of his pupils, so that by practice they may become perfect, even as he is. The press would derive great advantage, as the style of his written articles—so modest, so courteous, so free from the very semblance of egotism, would serve for a model to "Novice Editors."

I am, Sir, your obedient servant,

John Dow.

A "Novice Judge and Breeder," but not an Editor, nor a "puffed man."

Effects of Draining.—All the rain that falls upon our fields must be carried away either by natural or artificial drainage, or, having thoroughly saturated the soil on which it falls, be left upon the surface to be carried up by evaporation. Now, every gallon of water thus carried off by evaporation, requires as much heat as would raise five and a half gallons from the freezing to the boiling point! Without going to extreme cases, the great effects of the heat thus lost upon vegetation cannot fail to be striking, and I have frequently found the soil of a field well drained, higher in temperature from 10° to 15° than that of another field which had not been drained, though in every other respect the soils were similar. I have observed the effects of this on the growing crops, and I have seen not only a much inferior crop on the undrained field, but that crop harvested fully three weeks after the other; and owing to this circumstance, and the settling in of unsettled weather, I have seen that crop deteriorated fully ten per cent. in value.—*Journal of Royal Ag. Society.*

Charles Lamb's Opinion of Water Cure.—"It is is neither new nor wonderful, for it is as old as the deluge, when in my opinion it killed more than it cured." Yes: but it saved all that were worth saving: that is our opinion.

FRUIT RAISING IN LAMBTON—INFORMATION WANTED.

Bosanquet, Feb. 26th, 1857.

SIR,—I frequently hear questions asked in this part of the country about fruit raising. Now, Sir, I shall take the liberty of repeating them to you. In the first place,—this part of the country is quite new; there are a great many fruit trees planted out here, but they appear not to thrive well. A great many died in 1855 and 1856. I have seen the leaves of Cherry Trees totally killed with frost in the month of June, and the trees completely ruined. Can fruit be raised here to advantage? and what kinds, and on what location, and when, and how planted? By casting your eye on the map you will at once see our situation. I live ten miles from Lake Huron.

Yours, &c.,

C. H. CASE.

REMARKS.—As we have but little personal experience of the climatic and other influences of that part of Canada to which our correspondent refers, we are unable to offer more than a *conjecture* as to the cause of the difficulty he mentions. We see no reason why fruit trees should not thrive even better in the western part of the Province than in this neighborhood. We are inclined to think that the trees were *bad* to begin with, purchased perhaps from a Yankee pedlar sent into Canada to get rid of the refuse of some American Nursery. Such trees never do well any where. Or if purchased from a Canadian Nursery, they may have been tender sorts, not adapted for exposed situations. Mr. Case should have stated the *name* of the sorts that failed, where grown, &c. Mr. Dougall, of Amherstburg, must be well acquainted with the peculiarities of fruit culture in the western section of the Peninsula—perhaps he will enlighten us on the subject?

THE NEW SUGAR PLANT.

While we would caution our farmers against believing all the stories told about new plants, especially by those who have seed to sell at a high price, we recommend a trial, and a fair trial, before passing sentence of condemnation. The following remarks upon the Chinese Sugar Cane are from an American journal of high standing. They deserve attention:—

The cultivation of the *Sorghum*, or Chinese sugar-plant, has thus far proved so decidedly successful in this country, not only in the South, where it seems to have been demonstrated that two crops or cuttings of sugar-bearing stalks can be obtained in one season from the same roots of that year's planting, but even so far north as Minnesota, where it is testified that good syrup was made in 1856 from stalks hardly a hundred days from the seed, that we are impelled to urge upon our farmers and gardeners the importance of early attention to the procuring of seed and planting for the season just before us. Let us all grow the seed this year, so that it can never more be so scarce that speculators may run it up to an enormous price. A great deal remains to be settled with regard to this plant, especially the best mode of converting its saccharine properties into crystallized Sugar; and it is highly probable that better varieties of it will ultimately be discovered, at least for certain localities, than that now current in this country. For the present, however, it is advisable to continue and extend the cultivation of that which is accessible, and thus test the effect of acclimation on the character of the plant, and the sweetness of its juices. We suspect that for Louisiana, Florida, and Texas, the Sorghum of Southern Africa will ultimately be found preferable to that obtained from France by our Patent Office, and from China by France. If it prove true that this plant,

or certain varieties of it, can be grown in semi-tropical latitudes from the same root, as the cane is grown in the West Indies, and that two or more crops of sugar-yielding stalks may be cut from that root each season, then there can be little doubt that our Southern States are destined still to lead the North in the production of Sugar. For the present, however, it suffices that the Sorghum may be grown wherever Indian Corn will usually ripen—that its abundant juice makes a very pleasant syrup or molasses, to which it is easily reduced by boiling away four-fifths of it in the ordinary mode of sugar-making from the sap of the maple—and that the leaves and stalks, whether green or dry, of the Sorghum make an admirable fodder for cattle, horses, or hogs, while the seeds are eaten with avidity by fowls also, to justify the general interest evinced in its cultivation. We propose, therefore, to condense into the smallest space some practical directions to the prospective cultivator—as follows:—

1. *Seed.*—If there be a seed-store within your reach, your easiest way is to send and buy what seed you want. In planting to raise seed (the first year's object), a pound will suffice for an acre; and this ought not to cost more than a dollar. But beware of impostors and swindlers, for bushels of broom-corn and kindred seeds will be palmed off as that of the Sorghum. Where you cannot readily obtain seed in this way, write to your Member of Congress, asking him to send you a paper, and he will generally be able to do so. If not, the Secretary of your State Agricultural Society may be able to supply you.

2. *Planting.*—Choose a warm, mellow soil, such as you would confidently expect to grow at least fifty bushels of Indian Corn to the acre. Plough early, plough deep and thoroughly. Plant as early as you could venture to plant corn. If you have a hot-bed, start a little seed in one corner of it. If you plant considerably, put in your seed at different times—say, in this latitude, one quarter each on the 1st, 10th, and 20th of May and 1st of June respectively. Plant (for seed) in hills, six seeds to the hill, and at distances of four feet each way. Try some five feet apart east and west (so as to let in the sun between the rows), and some in drills—say four to five feet apart east and west, with the seeds six inches apart in the drill, and thin the plants to one foot apart, If you have seed in abundance, sow a little in drills two feet apart, the seeds in the drill but two or three inches apart. Cover lightly, as the seed rots if covered deeply. Keep the hens at a distance, or it will come up too soon.

3. *Tillage.*—The Sorghum comes up looking very puny—much like broom-corn or barn-grass. If you set a blockhead to weed it, he will probably pull it up and report that it never germinated. Cultivate like Indian Corn—only faithfully. If suckers start, a majority say pinch them or pull them off—that is, in growing for seed. This need not be done in growing for sugar.

4. *Harvesting.*—Whenever the seed shall be hard and black, cut off the upper part of the stalks, say three feet long, and hang them up like broom-corn, in a dry chamber, suspended from the ceiling, so as to be out of the way of rats, &c. Now cut up your stalks, pull off the leaves, and satisfy yourself that all manner of stock will eat them; cut up a few of the stalks as you would corn-stalks, and try a like experiment with them; and put the rest of the stalks through any kind of a crushing-mill that may be handy—a cider-mill would be better than nothing—catch the juice and instantly warm it over a slow fire in a large kettle, skimming off the scum so long as any shall rise. Then boil the juice about four-fifths away, as if it were maple sap. Use a little lime or lime-water to neutralize the phosphoric acid, which otherwise will give a slightly acid but not unpleasant taste to the syrup. Save some syrup *without* thus neutralizing the acid, as you may like it better that way. Don't waste the scum, but throw it to the pigs, where it will make at least excellent manure. Feed the pumice or crushed stalks to your cattle; and, having thus cleared the ground, be ready to plant or sow extensively next Spring.

5. *Fodder.*—We estimate that, whenever seed shall be sufficiently abundant, any rich, warm land will produce a third more fodder per acre if sown with Sorghum than if sown with Indian Corn, and that the Sorghum is at least twenty-five per cent more nutritious than the corn. But all that can be effected this year is to grow a good supply of seed, and prove that this plant is valuable both for Syrup and Fodder. Next year will be soon enough for most cultivators to think of sowing for fodder or grinding for sugar.

One word of caution to experimenters: Don't run the thing into the ground. The Sorghum will prove a valuable addition to our crops, if we don't render it odious by some Multicaulis foolery. But wheat, Indian corn, and clover are not going out of fashion for some years yet.

BLOOD AND BOG SPAVIN.

The above diseases are of common occurrence in this country, and considerable speculation is afloat regarding the nature and treatment of the same. Many valuable horses have to submit to very harsh treatment, without any benefit; and in view of giving the reader a correct idea of the nature of these enlargements, we introduce the following article from "Elementary Lectures on Veterinary Science," by Surgeon Percivall:—

"In the human subject, the veins of the legs now and then become varicose, by which is meant, dilitation of their coats in consequence of preternatural distention. Under these circumstances, the valves in them perform but imperfectly their offices; the veins themselves becoming tortuous, bulge, and occasionally burst in various places, forming small tumors, or bloody ulcers, in the skin, which from the appearance of blood through them are of a purple color.

"Such have many Veterinary writers* conceived to to be the nature of bloody-spavin—a disease that has no existence but in the pages of their works.

"The horse, as far as our observations have gone, is not troubled with varix; and we much doubt that the veins of this animal have become spontaneously varicose, though we have none whatever, that something like varix may have been produced in them by the remedies commonly recommended for the removal of a blood-spavin. We allude here to the use of ligature—a practice long exploded by the scientific Veterinarian.

"If you examine a horse said to have blood-spavin, (for it is by no means a very common occurrence,) you will perceive a soft fluctuating tumor upon the inner and forepart of the hock, in the course of the principal vein, which is at that part superficially placed. At first view of it you are convinced, from the unnatural prominence of the part, that there must be disease—and so there undoubtedly is—though it is not of that kind which its name so emphatically expresses.

"Dissection has fully developed its nature. There is placed here a little membranous bag, called a bursa mucosa, which contains, in a natural state, a certain quantity of synovial fluid; from a too copious secretion of which, it happens, now and then, that this sack becomes distended, preternaturally enlarged, and in this condition constitutes a disease, called bog-spavin.

"The vein, passing immediately over this bag, compressed and diminished in calibre by enlargement of it, cannot transmit blood, at this part, with the usual facility of quickness; the consequence is, that a preternatural distension of it happens immediately below the tumid bursa, thence extending as low down as the first valve; and this has been taken for a varix, or some such thing, and denominated a blood-spavin.

"A blood-spavin, then, is purely a distension† of that vein which passes superficially over the inner and forepart of the hock-joint: solely produced by, and consequently coexistant with a bog-spavin.

"Be the cause of such obstruction, however, what it may, the same thing will happen; hence, if we tie this, or any other vein, we shall produce instantly, in truth, a blood-spavin, and probably, by allowing the ligature to continue, in process of time a varix."

To Stop Bleeding from the Cavity of an Extracted Tooth.—Noticing the case of Mrs. Locke, who bled to death in consequence of the extraction of a tooth, Dr. Addington of Richmond, Va., says he never fails to stop the bleeding by packing the alveolus from which the blood continued to trickle, fully and firmly with cotton moistened in as strong solution of alum and water. He cured a brother physician in this way, whose jaw had bled for two weeks.

The Boston Medical Journal mentions the following simple and economical apparatus for overcoming bad odours, and purifying any apartment where the air is loaded with noxious materials. Take one of any of the various kinds of glass lamps—for burning camphene, for example—and fill it with chloric ether, and light the wick. In a few minutes the object will be accomplished. In dissecting rooms, in the damp, deep vaults where drains allow the escape of offensive gases, in outbuildings, and in short in any spot where it is desirable to purify the atmosphere, burn one of these lamps. One tube charged with a wick is sufficient.

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* Bracken was the first who detected the fallacy of such an opinion.

† We would call a varix a dilitation.

CONTRACTION OF THE HOOF.

A Correspondent informs us that he has a valuable mare, the subject of *contracted feet*, and desires to know if faulty shoeing is not the cause of the same.

Altered structure, corns, and various other affections of horse's feet, are often attributed to the above cause, and no doubt a rational, and improved method of preparing the foot, and adjusting a suitable shoe for the same, may lessen the liability to some such diseases; yet we contend there are other causes than the above, over which the blacksmith has little if any control. We allude to that universal law, termed the hereditary predisposition; which provides that "like shall produce like." We know that the "Black Hawk," "Messenger," and many other permanent varieties of breeds, transmit to their offspring a peculiarity of form, temperament, quality and color, by which the lineage of the latter can with certainty be determined. And should the parent labor under any *permanent* disease, defect or vice, the same is very apt to be, directly, or indirectly, transmitted. The very color of the hair, accompanied by particular and distinctive marking, often extend and re-appear through several generations. Hence, a colt begotten by a sire defective in so important a part of the animal economy as the feet, ("no foot no horse,") must necessarily, in accordance with *nature's* immutable law, inherit the same *idiosyncrasy*. Therefore, the very best system of shoeing practised on *nature's* criminals, would fail, when attempting to reverse *her* decrees.

A horse, inheriting the least predisposition to faulty feet, is at all times liable, when used for draught, or speed, or paved thoroughfares, to disease of the same, which may end in *contraction*, it being, in nine cases out of ten, the result of primary disease of the foot.

A defect in the conformation of a horse's foot, may be so slight as to escape *ordinary* observation, yet the defect is there, liable to augmentation, and sooner or later the evil is discovered.

That a tendency to contraction of horse's feet does lurk in some breeds, we have abundant authoritative proof to offer, if necessary; consequently, faulty shoeing cannot be classed as the direct cause of contraction.

A point-blank argument in favor of the blacksmith in this view, is founded on the fact that contraction of the hind feet, which undergo the same system of shoeing, seldom, if ever, become the seat of this deformity. Among our truck horses, may be found many of the Pennsylvania, New York and Vermont breeds, that have to endure all the evils of shoeing, as well as of domestication; yet a great proportion of them enjoy immunity from contracted feet. Therefore, the latter are not predisposed; they have good open heels, the foot is well proportioned in all its parts, and bears a symmetrical relationship in size, form and action, to the limb and body, which it aids to support and move.

Hence contraction, as well as many other forms of disease which are observed in the feet of the horse, have their origin in hereditary predisposition; therefore, it is a matter of impossibility for a smith to make a good foot out of one that was originally defective.

CLEANLINESS.

There is a proberb in the Levant, that "no prince ever died of the plague," which means that the many resouces which oppulence affords are preventives against contagion. Accordingly we find that in those Mahometan countries, where the plague rages with the greatest violence, but few of those who enjoy the first of the State are ever attacked with the distemper, although according to the precepts of Mahomet, they are obliged to appear in public at all times, and must comply with general custom in giving their hands to be kissed indiscriminately by every Moor who comes to beg justice, or throw himself under their protection.

At a time when the plague at Algiers destroyed many thousands of the populace, who easily caught the infection from their negligence respecting their persons, but *two* out of *three hundred* officers, belonging to the Dey's household, were attacked with this mortal sickness.

Nor is cleanliness beneficial only in contagious disorders. Filth engenders corruption, taints the atmosphere, and predisposes the system to disease. And when an epidemic prevails, those persons who are particularly cleanly in their habits, are less likely to become victims to indisposition, than those who pursue an opposite course.

The importance of well ventilated rooms, cannot be too strongly urged upon the attendance of the sick. A free circulation of air is not only beneficial to persons labouring

under severe attacks of illness, but the preservation of those whe linger by the bedside of a diseased friend. It is said by medical men that there is no kind of *malaria* more pernicious and fatal in its effects, than *the poisonous atmosphere of an unventilated chamber where a person is suffering from a violent attack of an acute disease.* Here lies the mystery of the *contagiousness* of epidemics.

A celebrated English physician, (Dr. Smith on Fever,) says that "the room of a fever patient, in a small and heated apartment, in a populous city, with no circulation of fresh air, is perfectly analogous to a stagnant pool in Ethiopia, full of the bodies of dead locusts. Nature with her burning sun, her stilled and pent up wind, her stagnant and teeming marsh, manufactures plague on a large and fearful scale; poverty in her hut, covered with rags, surrounded with filth, striving with all her might to keep out the pure air, and to increase the heat, imitates nature but too successfully! the process and the product are the same—the only difference is the magnitude of the result. Penury and ignorance can thus, at any time and in any place, create a mortal plague."

RULES FOR RESTORING THE DROWNED.

BY MARSHALL HALL, M. D. F. R. S.

The following rules are the result of half a year's investigation of apnœa and asphyxia —a subject which I prosecute still further, knowing that truth only comes of long continued labor and research. I wish especially to put to the test of careful experiment, the correctness of the dogma, that if the heart has once ceased to beat, its action can never be restored—a dogma calculated to paralyze our efforts in many cases in which hope may really not be *totally* extinct:—

1. Treat the patient instantly on the spot, in the open air, except in severe weather, freely exposing the face, neck and chest, to the breeze.

2. Send with all speed for medical aid, and for articles of clothing, blankets, &c.

3. Place the patient gently on the face, with one arm under the forehead, so that any fluids may flow from the throat and mouth; and, without loss of time:—

I.—TO EXCITE RESPIRATION.

4. Turn the patient on his side,—and (1st.) Apply snuff or other irritant to the nostrils. (2d.)—Dash cold water on the face previously rubbed briskly until it is warm. If there be no success, again lose no time; but

II.—TO IMITATE RESPIRATION,

5. Replace the patient on his face; (when the tongue will then fall forward, and leave the entrance into the wind-pipe free;) then,

6. Turn the body gently, but completely, on the side and a little beyond, (when *in*spiration will occur,) and then on the face, making gentle pressure along the back, when *ex*piation will take place alternately; these measures must be repeated deliberately, efficiently, and perseveringly, fifteen times in the minute, *only;* meanwhile,—

III.—TO INDUCE CIRCULATION AND WARMTH,

7. Rub the limbs *upwards*, with firm pressure and with energy, using hankerchiefs, &c., for towels.

8. Replace the patient's wet clothing by such covering as can be instantly procured, each bystander supplying a coat, waistcoat, &c.

These rules are founded on phisiology; and whilst they comprise all that can be immediately done for the patient, exclude all apparatus, galvanism, the warm bath, &c., as useless, not to say injurious, especially the last of these; and all loss of time in removal, &c., as fatal.—*London Lancet.*

Health of Americans.—De Bow's mortality statistics, compiled from the last census, show that the people of the United States are the healthiest on the globe. The deaths are three hundred and twenty thousand per year, or one and a half per cent. of the population. In England the ratio is near two per cent., and in France nearly three per cent. Virginia and North Carolina are the healthiest of the States, and have six hundred and thirty-eight inhabitants over 100 years of age. These figures, however, may all be reversed by the next census, for the medical schools were never more flourishing, twenty-six colleges having graduated last year, about thirteen hundred doctors.

HINTS FOR MARCH.

In the opinion of some of our best orchardists, this is the month in which pruning may be done to advantage. There is more leisure than at any later period. The trunks of the trees in the orchard should be examined, and any that are mossy should be scraped; and it would be as well to give all a good scrubbing with a brush and soft soap. If the ground is thawed, all suckers that appear around the roots of the trees can be removed; and all shoots on the trunks should be carefully cut away. For standard trees, little is necessary beyond thinning out the small branches, to admit light and air freely to all parts of the tree, and removing all straggling branches and those that cross each other. In doing this, aim as far as possible to obtain a handsome, well-balanced head. Grape vines, and trees bearing stone fruits, may also be pruned in this month. *Dwarf Trees* may also be pruned now, and it should be done thoroughly. Pruning and manuring are essential to the growth of fruit from dwarf trees. If the weather be favourable, *Hot Beds* may be started, if designed for growing cucumbers or melons. If intended only to raise plants for the open ground, the first of April will be time enough.

Fences, as every good farmer knows, should be looked after at the earliest possible moment. When the spring fairly opens, there is always enough to engage the attention, without being obliged to repair ricketty or broken-down fences. Those who intend to plant fruit trees this spring, should be looking about them. Send your orders to the nursery early, so that you may get your trees in the ground before they have begun to bud. Late spring-planted trees seldom do well.

Marketing, if any remains to be done, had better be got through with now. Prices are surely high enough for every kind of produce. Wheat is not likely to go up much beyond present rates. At all events, those who are holding over for better prices are just as likely to lose as to gain by the operation.

The following are the prices, at Toronto, for the leading agricultural products:—*Wheat*, from 6s. 6d. to 6s. 10d.; from one to two thousand bushels per day. *Flour* in active demand, No. 1 Superfine, 26s. 3d. to 26s. 6d.; Extra and Double Extra, from 28s. 9d. to 32s. 6d. *Spring Wheat* is worth 5s. 2d. to 5s. 4d. *Barley*, 6s. *Oats*, 2s. 8d. to to 2s. 10d. *Peas*, 3s. 9d. to 4s. *Potatoes*, $1 per bushel. *Pork*, high and scarce; Dressed Hogs, $10 to 10¼ per 100 lbs; Mess, from $23 to $25 per barrel. *Hay*, $12 to $18 per ton.

To Correspondents.—We have received several communications for which we could not find room in this number. One from Mr. Parsons, on a variety of subjects, and much too lengthy for our columns. Some of his remarks on Turnip Culture are interesting and we shall therefore endeavour to make room for them in the April number. We must impress on correspondents the importance of making their communications *short*—i. e. not to extend beyond a page, or at most two pages. Rarely indeed should an original communication exceed a page. In a paper like the *Agriculturist*, short articles and variety should be the rule.

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A NEW SYSTEM OF FRUIT GROWING.

We present to our readers this month, a paper by Mr. Leslie, read before the Agricultural and Horticultural Club, on the subject of planting and cultivating fruit trees. Mr. Leslie is one of our best nurserymen; his views are therefore worthy of much respect. But while recommending a careful perusal of Mr. Leslie's paper, we have thought it our duty to submit for the benefit of our Horticultural readers, the following remarks upon a *new method* of growing fruit. We call it a "new method," though it has probably been practiced on a small scale, and in isolated cases, for many years. Mr. Field (of New York) is the first Horticulturist who appears to have adopted it as a system, and, as he alleges, with entire success. The following is a condensed report of his remarks before the New York Farmer's Club, and while we do not endorse all his conclusions, we must admit that he has presented his theory in a very striking form, and sustained it by a number of very plausible arguments. The cultivation of *Pears* was the subject before the Club, but if we understand Mr. Field, his method is not limited to that fruit. It is no longer true that—

He who plants Pears
Plants for his heirs.

He may now plant pears for himself as well as other fruit. The common method of planting and cultivating apple trees postpones to a sufficiently remote period the harvest of fruit. We have in our eye as we write, an orchard planted more than 20 years ago; the trees were from a nursery a few miles distant; they have received ordinary care; the soil is a clay loam, the clay predominating. Not one of those trees has yet borne two bushels of apples in a season—most of them only two or three dozen. "He who planted" them has already left them to his "heirs." He was barely allowed to see specimens of what they *would* produce when he could no longer enjoy it. In how many instances has the same thing happened? We do not think this long delay and miserly yield is wholly attributable to neglect. There is something wrong at the start. Whether Mr. Field's pyramidal system will remedy the evil, time only—and ample experiment—will prove.

THE GENERATION WHICH PLANTS—NEVER EATS.

Beyond question, the form of fruit trees best adapted for all the functions of growth, health and reproductiveness, is the pyramidal or conical, varying in species from the tall spire to the flattened dome. A single seed dropped in cultivated ground, throws up a shoot which, in its after growth, when unobstructed, forms more or less nearly the model to which we should shape our cultivated trees. How to do this at the least expense both of time and the healthy constitution of the tree, will be the subject of this Essay.

We must first look to the structure and physiological necessities of the tree. The genius of Harvey gave us the secret of the circulation of the blood in the animal system, and strikingly parallel are the processes of vegetation. The chyle formed from the digested food in the stomach, is injected by the action of the heart through channels that ramify and spread over the surface of the lungs where in contact with the oxygen of the atmosphere, it commenced its vital combustion, and then returning to the heart is by it driven through the internal arteries to the extremities. Running in minute vessels over the termini, such as the fingers and the toes, it returns in the external veins, depositing the matter that increases the size and weight of the body. So the sap chemically changed by the lacteals and absorbents of the roots, is by the secret forces of vegetable life impelled up the cellular arteries of the woody trunk and limbs, until it reaches the leaves, whose functions correspond so exactly with the lungs of animals. One great exception, however, proves the glorious harmony of the various parts of the Almighty Father's handiwork.

Our lungs reject the carbonic acid gas, which, twice breathed begets disease. The leaves drink up this poisonous gas as their proper atmosphere, and the sap thus aerated, turns over the termini of the leaves, passes down under their surfaces, and again courses back between the bark and the wood, depositing the carbonaceous and ligneous fiber of growth, and the saccharine and albuminous matter of fruit.

Over the terminal buds, as over the ends of the fingers, meet the coming and departing liquids, and to the terminal buds they are attracted with greatest force, and there they of course leave the greatest abundance of the food prepared. All Pomologists know how vigorous is the growth of the terminal shoots, and with how much difficulty they are restrained, so as to allow other parts of the tree to receive their proper and harmonious growth. We can always cut away sufficiently to bring the tree into balance; but as was said by an eminent surgeon, that surgery, or the excision of a diseased member, was but a barbarous confession of inability to cure it. So the cutting and pruning of an extraneous gourmand limb, is but a barbarous proof of neglect or ignorance. Nature needs but little assistance, but that little should be afforded at the proper time.

As plants and trees are grown in close nursery rows, they take an upright, cane-form, because like trees in a wood they are all struggling for the light, and lift their heads, by successive terminal growths, each to outdo his fellow.

I am often reminded of the horrible confinement of those unfortunate prisoners of Hyder Ali in the Black Hole, when I see the crowd d and suffocated trees of a nursery. If radial or side shoots should be formed, they are ultimately dropped by decay—rejected as useless, because their function of supplying healthy sap is lost; they are suffocated amid the multitude of breathers.

But usually no branching spurs are formed, and upright and slim grows the tree which is to furnish the future generations with fruit. Ignorant customers demanding tall trees, induce complaisant nurserymen to encourage this factitious growth, and the tree goes forth, to be planted in an enclosure where grass roots bind and torture its roots; grain stalks smother and stifle its branches; cattle brouse on its lungs; and hogs grub up its rootlets; and the second generation after the planter, eat the first fruit thereof, and forget to thank him, who himself long slumbering in the ground, has perhaps in some rural burial spot furnished the elements of growth to trees his negligence denied in life.

Let us look at the difficulties in the way of preparing the ordinary nursery trees for the true form of fruit trees—the conical or pyramidal—branching from the ground. If

perchance radial branches have been formed lower than three feet, the knife of the mercenary nurseryman has trimmed them off.

To produce a pyramidal form from this, (and I may here say after many examinations of American nurseries, that it is almost impossible to find any other treatment of a tree) we commence by cutting back one-half its length. The next effort of nature is to have the root sap aerated, and there are few or no leaves to effect it. A large amount of sap is thrown upon these few, and often, what horticulturists term suffocation, ensues, and a sickly growth of thin small shoots is the only result. When, however, the roots are not sufficiently vigorous to produce this effect, several roots start from near the amputation and force their way up in a thick bushy clustre, or a gourmand or two springs up, absorbing all the sap and growth. It becomes more and more difficult to draw out the buds below, and after the bark is two years old, almost impossible. So here we must start for our pyramid, with a raw amputation that for years exhibits its ungainly scar, and at last closes over with bark and wood, which conceals within a dead and decaying piece of organism, that must prove similar in its irritating effects to a carious bone in the animal economy.

Let it henceforth be settled as an axiom of Horticulture, which we are required to believe before he can pass the threshold of the science, that to cut any portion of the wood of more than one year old, is to interfere more or less seriously with the organism of the tree. That to cure is better than to amputate, and to form a tree properly we must have begun at the foundation.

The maiden plant must stand at sufficient distance from its fellows to enable it to radiate its branches from the ground for the distance of a foot on either side, without interference. Then, when a sufficient number of radial branches do not form, the terminal bud must be pinched off during the midsummer growth. This wood, now in its succulent and sappy condition, heals over at once, and no scar is left. By the loss of the terminal bud the sap is distributed to the lower buds and radial shoots push forth. Thus is formed the true pyramid, and by an occasional pinching in of its succulent growth, no great interference with its vital organism is effected, and its form is preserved through all its coming growth.

And now I may be asked, what advantages are to be gained for all these pains-takings? What compensation gains for all tedious labor?

When trees have endured the common interference with their structure, and have been trimmed up until they have unwillingly been forced to stand with all their superstructure of leaves, limbs and fruits, mounted on a stem that connects them with their substructure of roots and absorbents, did any one ever seriously ask himself what office the naked trunk of a tree performs in the economy of a tree? did any such querist ever obtain a satisfactory reply? It seems almost as though our fathers, having only the models of the giant and naked bolls of the primeval forest before them, feebly imitated them in their fruit trees.

CAUSE OF SUCH TRAINING—TO OBTAIN GRAIN CROPS IN ORCHARDS.

1st. A tree standing on an open plain should be nearer the model, only that the grass and seeds have forced a short trunk upon it by suffocating its lower limbs. In cultivated grounds this would never exist. With a trunk six to ten feet high the sap must travel through so much waste wood before it reaches the branches where it is to perform its various offices. How ludicrous would be the exhibition of human beings never approaching their food nearer than six to ten feet, and drawing and sucking it through a gutta percha tube! But little less monstrous is the enforcing of this unnatural custom of the shape of trees. The sap, obliged to travel up this waste of wood, becomes thickened and coagulated by the fervent action of the sun's rays, and in midsummer the tree languishes and much of its leaves and fruit falls to the ground. The bark thickens and indurates under this action with mysterious sympathy, to secure the inner structure from the excessive heat; then becoming hide bound, another surgical operation becomes necessary, and the thick bark is slit from top to bottom.

2d. The tree now takes the form of an inverted cone, standing on its apex, and this again lifted upon a pedestal six to ten feet high. It now throws a shadow which covers, and poisons by its shade, an area of ground ten times the superfice, measured by its own diameter of foliage. That is, to grow a tree thirty-eight feet in height, eight feet of which is trunk, and whose loose straggling and spreading top could be compressed into a pyramid of *twenty feet* in height, and then exhibit equal foliage to the sun and air, we

must destroy the herbage on at least an equal radius, or eighty feet in diameter; or in other words, a space equal to the planting of eight trees fully its equal in productiveness and foliage. 1st. Because a conical tree with its base near the ground throws but a small shadow, and next, by the spaces between them increasing an area as we ascend, every portion of them is equally exposed to light and air.

3rd. Trees with a long trunk are much longer coming into bearing. The pear on its own stock as a standard, varies with the kind from eight to twenty. Trained as a pyramid, its period of bearing is lessened from four to twelve years. The Seckel and Urbaniste, upon pear stock, and with a stem of five feet, are not unfrequently fifteen years producing their first fruit. With low pyramidal training, and a slight attention to summer pruning or pinching, this tedious and discouraging delay is most certainly shortened to seven or eight years, How considerable is this addition to the short life which the Great Gardener vouchsafes as to the cultivation of his soil! Were it proper to admit within the limits of this essay, the new and striking results of *root pruning*, I might show how even this short period might be lessened nearly one-half. And lest I may seem obnoxious to the charge which lies at the door of the editors of Agricultural periodicals and theoretic essayists, of saying fine things which need the proof extended and practical experiment, I may here assert, that no position in this essay has been taken, which has not already been substantially and satisfactorily proved with hundreds of trees on my grounds.

The cause of the precocious fruiting of pyramidal trees is, First, that the sap checked by the summer pinching in its flow to the terminal bud, is distributed to the wood buds below, and sufficient nutriment is received to mature them into fruit buds. Second, that the energies and material eight or ten years growth is not wasted in forming a needless trunk, before they can be applied to producing fruit branches.

A certain age of bark and cellular woody formation of a branch is necessary, before it will cause the sap to flow slowly enough to concentrate into fruit juice. Now if the earlier branches formed, are entangled, it is evident we must protract the fruit bearing period. Besides, the pruning away of so much wood forces an abundance of sap to the terminal buds, and its energies are spent in wood growth at the expense of fruit bud formation.

When, however, branches start from or near the ground, having the same age with the trunk, fruit buds are formed long before they could have been on long trunk trees; the sap is more evenly distributed, wood growth is moderately checked, and the cultivator's eye is gladdened with the golden fruit.

At this time of our local prosperity and individual freedom from pecuniary cares of so many successful business men, Nature is asserting her claim to many a man's affections, by unappeasable yearnings for country life. But life with many of these citizens, —turning farmer and fruit raiser,—is already more than half spent, yet still indefinable longings to taste the fruit of their own planting, tug at their heart strings and purse strings. "I can only plant for my children," is his half sad, half complaining conclusion, as he looks at the ancient and shattered orchard, where the memory of fruit is a thing of the last generation. To *him*, and to *all*, the new Pomona offers the opportunity of seeing silver blossoms and golden fruits follow in quick succession on the small trees he doubtingly, yet in duty plants. Let him study Nature's silent lessons, for wisdom crieth not in the streets; let him watch her exact but quiet processes, and assist but not distort her workmanship, and he shall see new effects and rich successes crown his labors with delight.

Let no pruning knife amputate the first fruit bearing arms she stretches forth, but gently check in its young growth the errant straggler; supply its roots bountifully with proper nutriment, and there is no man who leaves the weary city, who may not hope to see fruit hang upon the tree he has planted.

4th. The size and quality of fruit is much increased by this cultivation and training of the tree, and nothing has delighted Horticulturists more during the last few years, than this fact. It has long been known that young trees produce larger fruit, but deficient in flavor. Old trees produce fruit of fine taste, but constantly decreasing in size. We combine both these excellencies, and rid ourselves of both these faults by the conical training. In the low compact form, when an excessive quantity of fruit has set, it becomes an easy task to thin out the overplus, and concentrate the sap in that number which can be perfectly matured.

But the length of this essay warns me that I must not indulge in arguments in favor of the advantages in form, but simply state the bare fact.

5th. The longevity of the tree is increased, and fruitfulness is extended over a much longer period. The Peach culture of the last few years has exemplified this most fully; few orchards are now planted with trunks of more than two feet.

6th. A much larger number may be planted on a given area. Instead of 40 Pear, 35 to 40 Apple, 80 Peach, &c., to the acre, 200 to 400 Pear and Apple, and 200 of the Peach, may for many years occupy the soil and yield their fruits, and if a future generation shall find them crowded, the trees have not cost it anything, and the proper number may be thinned out. If the said next generation should be diposed to find fault with the prodigality of its predecessor, it may find consolation in the fact, that the original cost and interest is reimbursed in fire wood; meanwhile the generation which planted has enjoyed the fruit of its labors, and was satisfied. It is easier to cut down a fruit tree that cost two shillings than it is to obtain it with fifteen years growth at ten dollars.

7th. Trees by their comparatively low stature are protected from blasting winds, and often preserve their fruit when the tall tree has cast her untimely blossoms.

8th. Pyramidal trees are less liable to wrenching, turning over by the roots or breaking off by the immense resistance of the sail-like expanse of foliage at the end of the long lever trunk. Having their widest diameter near the ground, they offer little resistance to the wind, and never exhibit the distorted leaning that characterizes thousands of orchards.

9th. The trunk is protected by the foliage from the parching sun-rays, and the sap reaches its destination just in the condition Nature provided in the roots, without concentration or travelling an unnecessary distance.

10th. The soil protected by the near foliage, not only brings forth no suffocating grass or weeds, but its juices are not dried up by the heat, and the roots stunted and starved in their nourishment. Whatever value attaches to mulching, the tree thus provides for itself.

Thus far, and only, can I tax your patience. A thousand curious and beautiful incidents of my own experience, with hundreds and thousands of trees, I dare not indulge myself with beginning to narrate. A Horticulturist's garrulity is only equalled by a parent dilating on a surprising child, and the sentiment which cultivation and care of trees engenders towards them in a genuine tree lover, is near akin to parental affection.

And now middle aged, elderly, and even old man, hesitate no longer to plant the tree you yearn to, because you may not eat the fruit thereof. A new fruit culture promises you that a little patience, a little skill to labor, an earnest watch of Nature, and a good deal of the letting alone of the young tree, will reward your keenest desires.

Points in a Good Horse.—In purchasing a good horse, sight, wind, feet and limbs must be the uppermost objects of inquiry, for nine horses out of ten are defective in one of these particulars. First, then, examine his eyes, and do this before he comes out of the stable; see that they are perfectly clear and transparent, and that the pupils or apples of the eye are exactly alike in size and color. Next examine his pipes; if good and sound, on being nipped in the gullet, he will utter a sound like that from a bellows; but if his lungs are touched and he is broken winded, he will give vent to a dry, husky, short cough; look to his limbs also, and in passing your hands down his legs, if you find any unnatural protuberance, or puffiness, or if feeling first one leg then the other, you discover any difference between them, disease, more or less, is present; he may not be lame, but he is not clean upon his legs. If he is broad and full between the eyes, he may be depended on as a horse of good sense, and capable of being trained to almost anything. If you want a gentle horse, get one with more or less white upon him; many suppose that the particolored horses belonging to circuses, shows, &c., are selected for their oddity; but it is on account of their docility and gentleness; in fact, the more kindly you treat horses, the better you will be treated by them in return.—*Spirit of the Press.*

Potato yeast.—Pare, boil, and mash fine, twelve potatoes; stir into these, one large cup sugar, and one quart of boiling water; when cool add one quart of cold water, and half a pint or less of yeast; keep it in a warm place about twelve hours when it will be ready for use. Shake it carefully before using. Always reserve a small quanity of old yeast for raising the new. Bread or cakes made with this yeast never need saleratus, and will rise very quickly. Housekeepers should adopt any new method that will dispense with the use of so unwholesome and article as saleratus.

HORTICULTURAL AND AGRICULTURAL CLUB.

Mr. G. Leslie, at a recent meeting, read the following excellent and very useful paper:

ON THE MANAGEMENT OF ORCHARDS AND FRUIT TREES.

The subject I have the pleasure to introduce to the Club to-day, is orcharding and the management of fruit trees, a subject of great importance to the country at large; and I feel sensibly my own inability to treat it as it should be; however, I have endeavored to put a few facts together in a plain way to open up a discussion. The climate of Canada West is particularly well adapted to the culture of the more useful and substantial fruits, namely apples, pears, plums, cherries; and in some sections peaches are grown to great perfection. A number of us will remember what was the general condition of fruit culture twenty years ago. 'Tis true some among the more intelligent land owners had planted fruit trees at that early period, but common orchards then would hardly satisfy modern fruit-growers, and of the fruits then cultivated there was no higher claim than that they were grafted fruit, all sorts being comprehended under the two names natural and grafted.

The few scattered cherries consisted of sour kinds, commonly called Kentish, with sometimes a few scattered May Dukes and Ox Hearts. Our Plums consisted of common blue and yellow, with a few Egg and Green Gage. Few people had ever heard of the fine varieties that have been introduced within the last fourteen years, such as Bolmer's Washington, Jefferson, Quan's Purple, Imperial Guage, &c., &c. The only distinction then was wild Plums and tame Plumbs. Of Pears, there were none, and they are still scarce, and a great rarity in our markets. These remarks apply to the common practice only, for there were here and there worthy exceptions of individuals, who, in the face of great difficulties which have now happily disappeared, had collected many of the improved varieties which even now stand among our esteemed sorts; such for instance, among apples, as the Fameuse, Pomme Grise, Bourasse Baldwin, R. I. Greening, Early Harvest, &c., &c. Last year our fruit crop was rather a failure, but in the fall of 1855 I was very much pleased to see a few barrels of fine specimens of the following sorts grown in the neighborhood of Toronto, offered for sale in our market, namely:—Fall Pipin, Æsopus, Spitzenburg, Yellow Bellflower, Baldwin, Roxbury Russet, St. Lawrence, Ribston Pippin, &c.; and from the number of trees planted in late years, we may expect to see in our market a few more of the best sorts for commerce and transportation. We have now arrived at an advanced stage of prosperity—we have means of conveying fruit and fruit trees from one end of the country to the other,—we have large nurseries in Canada and all over the United States, enabling a man to purchase, within a short distance or a thousand miles off, and we can depend on the accuracy of the names. With all these facilities we are still far behind what we ought to be with fruit culture. I have no doubt but good apples will be worth $4 or $5 per barrel in this country nine or ten years hence. I will give you my reasons for supposing so. Our towns and villages are growing with a rapidity never before known in any country; the people must have fruit, and where are they to get is? I venture to say, not in Canada. There are no persons within my knowledge who have gone into fruit culture as a business, and the produce of what few trees the farmers plant, will nearly be consumed by themselves. It is also a fact that north of Lakes Simcoe and Huron, very little fruit can be grown. These are some of my reasons for thinking that fruit will be dearer ten years hence. But there is another reason why we shall have a limited supply of fruit for some time to come, and that is the bad treatment trees receive after they are set out. I know in some of the olders townships, in the Home District—orchards that have been set out twenty-five years ago, with some 50 or 100 trees, that do not produce enough for the families that own them, when they should have, at least, 100 barrels to sell. When travelling two weeks ago through the townships of Toronto, Trafalgar, Chinguacousy, Caledon, Mono, and Etobicoke, I was struck with amazement at not seeing a really well managed orchard; but in some half the trees had died out, others were broken down by cattle and sheep, and a few large old ones that might be renovated and improved, had tops as thick as a thorn bush, full of dead limbs, and their trunks covered with moss and rust. The most of these orchards that I saw were growing on flat land—soured up for want of draining, manuring and deep tillage. Now, I would say to the owners of such orchards, go to work —prune your trees properly—scrape the bark clean and smooth with a sharp hoe or

scraper, then wash with the solution hereafter recommended—under drain thoroughly—cultivate the ground in potatoes or other green crop, for a few years, with a good dressing of manure, annually, and the trees that are of inferior fruit and have healthy stalks, graft them with the best sorts of Market Apples. What we need most for our provision for the future, is such a selection as will give a varied and excellent supply through the winter and spring. Long keeping apples may be sent safely to any part of Europe, and pay better than wheat. We need not fear to plant too many of these, for a large supply will create large facilities for their distant conveyance, and open large markets for their sale.

Perhaps what I have now advanced with regard to future supply should be left to be discussed by the club. I shall now proceed to lay before you my views on the following subjects, in the hope that it will at least create a discussion in the club that will be useful to the country:

1st. The best situation and soil for an orchard.
2nd. Preparing the ground, &c.
3rd. Planting, distance, and mulching.
4th. Pruning, scraping and cleaning.
5th. Manuring, and after management.
6th. Diseases, &c.
7th. Cost and profit of an orchard.

First, then, Mr. Barry says, the situation and soil of an orchard, with regard to exposure or aspect, requires but little consideration, where spring frosts do not prevail. The main difficulties to guard against are the prevailing high winds, from the west and north, that injure the blossoms and blow off the fruit before it is ripe. If possible a situation should be chosen where a natural hill or ridge protects and breaks the force of destructive storms; but where no such obstacles exist, a belt or border of rapidly growing trees, such as broad leaved poplar, maples, and abeles, should be planted that they may grow up and form a protection, by the time the trees have come into bearing. I agree with Mr. Barry in this view, but I prefer for shelter, evergreens, such as White Pine and Hemlock; White Cedar also makes a beautiful screen, takes up very little room, and may be clipped like a hedge. Shelter is of the very highest importance to the fruit-grower, and no garden or orchard should be without it. Some argue that fruit trees ought to be planted in valleys. I maintain and say it from experience that fruit trees should not be planted in low ground, except on very sandy flats, where it can be drained easily. There are many instances that we read of in the neighboring States of orchards bearing regular crops on high hills, when on low ground they seldom bear a good crop. Mr. Thomas, in his fruit Culturist says, he could mention multitudes of cases where peach orchards were killed to the ground by the winter on low land, and never missed a crop on high land within 500 feet of the same place. He cites as a reason that vegetation is easier excited in spring than in more elevated and colder situations, and that frosts always fall more heavily on low than on high grounds. This will show you, coming from such high authority as J. J. Thomas, that hills and banks unfit for other cultivation, may be turned into orchard grounds, and my own observation convinces me that he is right. The best crop of fruit that I have seen in the country I saw in an orchard on the top of the Hamilton Mountain, when on the flats east of the town, where there are large orchards, the crops are very thin. Experience has taught cultivators that high, dry, and moderately rich soil will produce the best crops.

SOIL.

It is only necessary here to point out the best soils adapted to the different classes of fruit trees. There are soils of certain texture, such as sandy loam, with a clay sandy subsoil, in which, by proper management, all our hardy fruits may be grown to perfection side by side. Our country abounds in such soils, and others somewhat different in character, but equally fit for fruit trees when well managed. On the other hand there are soils wholly unfit for fruit trees of any kind, such as peaty or mucky and damp, cold, spongy soils. For a pear and apple orchard, a dry, deep, substantial soil, between sandy and clay loam is the best; on such we see the healthiest trees and the fairest fruit.—Plums succeed best on a stiff clay loam. The cherry, peach, nectarine, and apricot require a light, dry, warm soil, and will not succeed well on any other. Where the proper ingredients for fruit trees are not contained in the soil, it should be added in the shape of manure or compost. I observed the other day some very healthy fruit trees on the Caledon Hills, where the soil was a clay loam and nearly covered with lime stone.

In preparing the ground for an orchard, every field or piece of ground whether for garden or orchard requires levelling more or less. It adds to the appearance of the ground, and the surface water goes off quickly. The next thing to be done is to underdrain it thoroughly, if the ground requires it, with brick tile, stone or pine rails. Draining is not necessary in all soils, but only in such as are heavy clay, with a hard subsoil, or in wet spongy grounds. Undrained grounds, again, are not fit for trees of any kind; for wet in winter, has a very injurious effect on the roots of trees, whether small or large, I know this from long experience to my cost. After levelling and draining is finished, draw out your manure, 80 cart loads to an acre, beginning on the far side, and spread it only as it is ploughed under. The ground should be at least twice ploughed with a common and subsoil plough. The best way to do this, I find, is to start two teams, one in the common plough, and one in the subsoil, the one following the other, twice in each furrow. In this way, there is no stopping to change the horses, from one plough to the other, which is a great saving of time, and you get 18 to 20 inches depth. Two teams will do half an acre in a day, and the work will be equal to two spit trenching. After ploughing is done, the harrowing and levelling the ground afterwards completes the whole operation, and it can then be laid out, in whatever form the proprietor may wish, for a garden, fruit orchard, or lawn, and if the work has been thoroughly done according to the directions here given, I have no hesitation in saying it will be in fit condition to grow any kind of crop. On ground of limited dimensions the spade may be used in place of the plough.

PLANTING AN ORCHARD.

Having procured the trees, dig a trench and lay them in, covering their roots to prevent them from drying, and take them from this trench according as they are planted. I am aware that some people plant trees and kill them while they are planting them, by leaving the trees exposed, perhaps a whole day to the hot sun. Proceed now to stake out the ground in regular distances, taking care to lay out the plot at right angles, because if this is not done the trees will not line in the different directions. I think it is best to plant in squares, as this gives the best facilities for working the land where oxen and horses are used. If a garden line is not convenient that will reach across the whole plot, provide stakes and set them on the ground in squares of from 25 to 30 feet, where the trees are to be planted, as these are more easily arranged than the trees themselves. Where the ground is prepared the holes need not be dug any larger or deeper than just sufficient to spread the roots out in their natural position, and should be just deep enough to allow the tree to stand as it did in the nursery. The process of planting is very simple and may be done rapidly, only keeping in view that every root and fibre must be spread out with the hand, so that each may meet the soil. Then let one person hold the tree while the other is filling in the soil; surface soil made fine should first be put in among the roots, and then gently shake the tree that no vacancies be left, treading it gently and firmly by the foot. Previous to planting, trim the ends of the roots with a sharp knife, cutting off all bruised roots: this will facilitate the formation of new roots and prevent the decay of the parts injured. Fruit trees of all sorts should be headed back at the time of planting, that is cutting off the half or more of last year's growth. Planting should never be done when the land is wet, as the soil is sure to become baked and hard round the root. After the planting is done it is necessary to mulch all the trees. There is no method of preserving newly planted trees like this; it is also true that no treatment is becoming so universally popular as this, and even well established trees would be greatly the better for a dressing of this kind. It seems just suited to our hot, sunny climate, preserving the moisture, preventing the growth of weeds, and supplying manure. Mulching consists in covering the ground about the trees, to a greater or less distance, according to size of the plant to be treated, with litter or long manure, and where neither is to be had, short straw or hay will do, spread over the roots to the thickness of four inches, and covering a space of not less than three feet in diameter. This will do more to preserve the trees from draught and promote their support than any other course I know of; it is also cheap, safe, and effectual, and no watering will be necessary. I have strongly recommended mulching, because I know very few understand the value of it. Every tree over five or six feet high ought to be staked and fastened to the stake by a straw or hay rope, and be careful to clear away suckets from about the roots as soon as they appear.

If the ground is cultivated in green crops for some years afterwards all the better for the trees, but if not worked with great care I would recommend the whole to be seeded

down at once, keeping 4 to 6 feet in diameter spaded and hard around each tree. The first disease that attacks young trees generally is the Bark Louse. They are easily destroyed by scraping and washing with soft soap. For young or old trees there is no wash that I know of equal to this, and it should be applied at the latter end of April, before the buds begin to swell.

PRUNING.

Pruning properly considered, is one of the most important operations connected with the growth and management of trees. In this country almost all fruit trees are grown as standards, that is to say trees having 5 to 6 feet clear stems. In this way they develope their natural forms, attain their largest size, and produce the greatest quantity of fruit with the least care. Orchard pruning may be considered the simplest and plainest of all pruning. There are many erroneous notions that it is a mere mechanical operation that any man can perform, and that, in rare cases only it is necessary. Nature, they say, never prunes, and why should we? There is no such thing, in reality, as growing well shaped, symmetrical trees and plants and sustainiug them in a vigorous and fruitful state, without pruning. A tree is composed of a multitude of parts, each of which has its functions to fulfil, and all these parts bear relation to each other, and to the life and growth of the tree.

Trees have roots and rootlets, stems, branches leaves, and buds, all of which are designated by certain names and have distinct offices to perform in the process of vegetation and fruit bearing. The intelligent cultivator must be familiar with the names and functions of all these parts, the peculiar structure, mode of growth a bearing of the different genera, and species, and varieties. Every man of experience will endorse this statement —the pruner should know well what he does and the precise reasons for so doing.—Pruning is not lopping off a branch at random; but every cut that a pruner makes upon a tree or plant should be guided by a knowledge of the habits of growth and blossoming and bearing of the subject, and have a well-understood and determined object in view. A feeble tree and a vigorous one must not be pruned alike. By way of illustration, I may here mention as a general rule, in all nurseries where trees are cultivated for sale, that pruning is one of the principal modes of cultivation. We take a seedling from the seed-bed, or a cutting from the nursing-bed, to transplant into stationary or nursery rows, and it is an invariable rule to cut back both the roots and tops, according to what their habit may be, to cause them to increase both the size of the rootlets and shape of the tops, which is done years in succession, until they are considered saleable and fit to plant permanently. After leaving the nursery, too much neglect, in many instances, has been the case in not attending to the preceding rules of cutting, or what is termed heading back the tops, of the shoots or young branches, one half of the young wood of the preceding year, also shortening and cutting in the long thick roots, to cause them to establish and furnish the heads with fresh shoots of young wood, from whence the cultivator can obtain the desired effect of it in a proper position. This is one of the principal objects to insure a successful growth after planting. It is no uncommon occurrence for one to plant trees as posts, neither cutting roots nor tops; consequently the extreme points are exposed to the influence of the weather, which has the effect of drawing up the sap from the roots too rapidly, consequently when there is no check from not being headed back, the wood dries up and the tree dies. I might here mention that there is another bad practice in the operation of pruning, that is to say, when a person applies the knife to a branch. The thought does not strike many that are not acquainted with pruning, that there is any particular mode of cutting a shoot or branch off; now what I alluded to is that the cut should be clean, drawing the knife from heel to point in a sloping position, and the cut to be made from the opposite side of a bud so as to leave no more than a sixth part of an inch of wood, or less, if possible, to heal over. Pruning is therefore commonly resorted to only for the purpose of increasing the vigour of feeble trees, or to regulate and improve the form of healthy, luxuriant trees, when established, to cause them to fruit. Pruning in general applies to all trees or plants less or more. We very frequently see the difference between some that have been pruned and some that have not. Pruning should invariably be done in this country in the month of April, when the severe frosts are over.

Since writing the above I find that I have extended my remarks more than I intended to have done; therefore, I leave some time for discussion, I consider it better to reserve the last three subjects mentioned above, namely: Manuring and after-management of an orchard; Diseases, &c.; Costs and profits of an orchard; to which may be added a few

remarks on the marketing and gathering of fruit; and I should feel obliged if the Club would grant me the opportunity this day four weeks, to finish my remarks on fruit culture.

As far as my knowledge extends, the following list of Apples comprises some among the best and most suitable varieties adapted to our climate:—

SUMMER VARIETIES.

Early Harvest, Summer Queen, Early Strawberry, Sweet Bough, Duchess of Oldenburg, Red Astrahan.—6.

FALL VARIETIES.

Fall Pippin, St. Lawrence, Fameuse, 20 oz. Apple, Ribston, Pippin, Porter.—6.

WINTER VARIETIES.

Rhode Island Greening, Baldwin, American Golden Russet, Pomme Grise, Roxbury Russet, White Bell-flower, Æsopus Spinzenburg, Newtown Pippin, Belmont, Swaar, Northern Spy, Dutch Megnonne.—12.

Some discussion then took place upon various points touched upon by Mr. Leslie, particular attention being called to the general very great loss of fruit trees after planting; and which nearly all present seemed to concur in ascribing to inefficient drainage of land laid out for orchards, and destructive treatment, or neglect, of the trees, both before and after planting.

A vote of thanks was given to Mr. Leslie for his valuable paper, which, as will be seen above, he promises to continue at another meeting; and the Club adjourned till Thursday, 19th instant, when Mr. Mundie will read a paper "On the Conservatism of Timber and Shade Trees, with observations on planting, both for utility and ornament."

TWIN COLTS.

To the Editor of the Agriculturist.

DARLINGTON, 14th March, 1857.

SIR,—In your number for the present month I see a letter from S. B. S., concerning twin colts. As you wish to hear opinions from personal observation, I thought it my duty to forward this. About ten years before I left England, a mare belonging to my brother had two colts, the one a male the other a female. The mother died and the male colt died also; the female was brought up by cow's milk, and did well. Before I left England she was the mother of three or four colts. She was a capital animal, and the best of care was taken of her. She made as good a brood mare as could be desired. I never knew a twin heifer breed. We always worked them as oxen—the best and quickest workers I ever had—we called them "free martins."

Yours, &c.,

FRANCIS COLEMAN.

GREAT SALE OF SHORT HORN CATTLE—.MR. SAMUEL THORNE, of Thornedale, has brought the entire Herds of Col. LEWIS G. MORRIS and the late NOEL J. BECAR. The Thornedale Herd will now be the finest Herd of Short Horn Cattle in the world—and there can be no need of going to England to secure the best Short Horns, whether blood or quality is desired. These Herds will be removed to Thornedale in June. We understand that Mr. Thorne will have about thirty females for sale, as well as some very superior bulls.—*Journal N. Y. S. Society.*

FRUIT CAKE.—Take 6 eggs, 2 cups sugar, 1 cup sweet milk, 1 cup of butter, 1 pound chopped raisins, 1 teaspoonful saleratus. Spice to your taste.

CHEAP CAKE.—1½ cups sugar, 1 cup butter, 1 cup buttermilk, 1 egg; flour enough for a batter; 1 teaspoonful of saleratus.

BARLEY.

We condense the following remarks on the culture of Barley from late numbers of the Rochester *New Yorker*.

Soils and their Adaptation.

The best soil for barley is a warm, rich, and mellow loam. In England, says Johnston, the terms barley-land and wheat-land are the usual designation of light and heavy soils adapted especially to the growth of these several crops. On clay lands the produce of barley is greater, but is of a coarse quality and does not malt as well—on loams it is plump and full of meal—and on light calcareous soils the crop is light, the grain thin in the skin, of a rich color, and well adapted to malting. Mucky soils will occasionally produce good barley, though rather light in weight, but they are far from sure for this crop. It may appear favorably until near heading, and then turn yellow and produce nothing, particularly if dry weather occur. A deep gravelly loam, in the best condition to promote vigorous vegetation—one which will bear drought and produce a full growth of straw—if fertile and properly moist and favored by a warm season, will produce a large crop of barley. It should not follow wheat or oats, nor should a second crop come immediately after the first, without the application of a liberal dressing of well decomposed manure—and it is the best course to seed to clover, which succeeds well with barley, growing that for two years and then some manured corn or root crop, before re-cropping with barley.

Preparation and Culture.

The preparation of the soil for barley, as already hinted at, should be of a thorough character. A deep mellow tilth is most favorable to productiveness. It is the practice of many of our most successful farmers to sow barley after a hoed crop—when the earth is left light and free from weeds. Barley suffers much from a foul state of the soil. After a good crop of corn, well-manured, and thoroughly cultivated, of course, a good yield generally follows, larger than if the manure had been applied directly to the barley. These corn stubbles are generally plowed in the fall, especially if not of a rapidly drying or well drained character; and care should always be taken to provide ready surface drainage that no water may stagnate upon the soil. A fall-plowed clover ley properly prepared is generally productive. We should recommend in spring first harrowing lengthwise the furrow, and then working with the gang plow or wheat cultivator before sowing. When green sward is to be sown, the use of the Double or Michigan Plow, would ensure a better prepared seed bed. Some plow as deeply as possible with the common plow, and then cover the seed with the gang plow, harrowing and rolling afterward. It is important to roll after seeding in any case, as a better growth will be insured.

It should ever be borne in mind by those who grow barley, that fine tilth—a deep, well pulverized soil is very important. Clays will produce fair crops, if well worked with harrow and roller, and the season be favorable. Maturing quickly, it requires good culture and the soil fitted to give it immediate and abundant support.

Time of Sowing—Amount of Seed.

Barley should be sown as early as the season will allow of adequate preparation. The crop stands about three months on the ground, and it is important that it gets a fair start before the summer drouth comes on. Of late years we find few successful crops which were sown later than May-day, and one advantage of fall plowing our corn stubbles is that it facilitates the early sowing of the barley crop following in rotation.

The amount of seed usually given to an acre, varies from two to three and one-half bushel; poor, early sown, and mellow soils requiring least. If drilled in also a less quantity is required; and rolling when the young plants are a few inches in height, if the ground is dry and porous, is said to be serviceable in giving support to the roots, causing the plants to tiller and increasing their vigor. We question the utility of sowing over two and one-half bushels per acre, though some of the best crops reported have received three bushels, and three and one-half. Others, however, equally as good, have been produced from two bushels seeding.

Harvesting—Value of the Straw.

In harvesting barley it is important to cut it at the right stage, when neither too green or too ripe. If rather green, the grain shrinks, and is of light weight—if fully ripe it shells easily and the straw is of less value. It is said that when the head begins to

assume a reddish cast and drops down upon the straw, the proper period of harvesting has arrived, and as after this the grain matures rapidly, it should at once be cared for. It may be mown or cradled, or cut with a reaper; if the straw is long it should be bound, though with proper forks for loading, it may be pitched from the swath without this additional labor. It need not stand long in the field, yet care should be taken that it is properly dry before storing in large mows, as it is more easily injured by heating than any other grain.

Barley straw well cured and not over ripe is readily eaten by all kinds of stock. It is worth more for fodder than wheat straw, and is equal, perhaps, to corn stalks or inferior hay. The chaff is much liked notwithstanding the strong beards with which it is filled.

Uses—Stock Feed—Malting, Etc.

The greatest use made of barley is in the production of fermented and alcoholic liquors, but this grain affords an excellent feed for horses and is equal to corn for fattening cattle and swine. For the latter purpose it should be cooked or soaked in the grain, or the meal may be wet and allowed to commence fermentation before using. This grain when boiled has long been employed in Europe as horse food, especially after a hard day's work or during illness. When fed to horses in a half malted state, it is said to be perfectly harmless, however heated they may be, or whatever quantity they may eat. To prepare it, soak it in water from twelve to twenty-four hours in the usual way.

In malting for manufacturing purposes the grain is soaked for several days in large vats filled with water, and then heaped upon floors to sprout, in which process *diastase* is formed, which has the property of converting the starch into sugar. The grain, when thus sprouted, is placed over a furnace and hot air passing through it checks the germination and drives off the moisture. When thoroughly dried it is ready for the use of the brewer, who steeps it in warm water, and in combination with hops and other substances produces ale, porter, beer, etc. For distilling it is first ground or crushed, and submitted to the usual process.

Diseases and Insects.

The diseases and insects injurious to barley are not numerous. A kind of smut called the barley brand, sometimes prevails in cold, wet seasons, and is its worst disease. It is a fungus parasite having its seat in the ear, and developing a sort of woody tissue between the layers of the fungus. The outer covering of the grain remains sound, but the internal structure is blackened and destroyed. In the Eastern States the "maggot" or worm in the straw sometimes injures barley, and the wheat midge has occasionally been found in it, in sections where it prevails.

Yield and Profit of the Crop.

The average yield and profit of barley compares favorably with other grains. It can be grown for fifty cents per bushel, and prices of late have averaged more than double that amount. The products ranges to ten or fifteen to fifty bushels per acre—the average may be put at twenty-five bushels in Western New York.

Never give up.—Who are our rich men?—our distinguished men?—our most useful men? Those who have been cast down, but not destroyed—who, when the breeze of adversity swept away their props, sought new standards—pushed on—looked up, and became what you behold them now. A glorious sentence and worthy to be inspired—*Never give up!* Men are not made—they make themselves. A steady perseverance—a determination never to sink, though millstones were hanged about their neck—is the true doctrine. It is this that has made the wilderness to blossom, that has given wings to the ocean, filled valleys, levelled mountains, and built up the great cities of the world.

Soda Cake.—2½ cups sugar, 3 eggs, 1 cup sweet milk, a piece of butter the size of a hen's egg, 1 heaping teaspoonful oi cream of tartar, ⅗ of a teaspoonful of soda and a little nutmeg.

Carrot Pies.—Take 2 good-sized carrots, clean and grate them; scald a quart of milk and pour on the carrots, and set it to cool. Take 3 eggs and 1 cup of sugar, beat well together and stir into the carrot; season with nutmeg or cinnamon.

DRAINAGE WITH SMALL PIPES.

A correspondent of the *London Gardeners' Chronicle*, gives his experience in draining as follows:

"The quantity of land experimented upon was thirty-three acres, of a cold putty-like clay. The expense of drainage, three pounds, (about 14½ dollars,) per acre, cost of pipes of 1 inch bore and 15 inches long, 15 shillings, ($3,75) per 1000. The drains are placed thirty-three feet apart. The pipes are placed five feet below the surface, the pieces being butted against each other. No stones or bushes placed over them, nothing but the clay soil is returned into the drain. I have several times examined these drains after rains, and find they run admirably, like so many tea-pots, leaving the surface soil dry enough, in a short time, to plow, hoe, or subsoil. The soil is a very strong, brown, brick earth, varying occasionally to a yellow color with much iron in it. *The difference in the wheat crop this year, between the drained and undrained land on my farm is fully eight bushels per acre and one load of straw, being more than the whole cost of drainage.*

"I am aware that the use of pipes so small a calibre as *one inch* is objected to. Doubts are suggested that they are not large enough to carry off the water. I have never, yet, however seen them run more than *half full*, although possibly in the course of years, when the soil becomes, as it will, more friable, water must have a freer access to them. We have the authority of Mr. Josiah Parkes, whose calculations cannot be controverted, that one inch pipes at 33 ft. or two rods apart, and four feet deep, will carry off all the water that falls from the heavens for a given space in a given time.

"There is something very absurd in the opinion held by some that clays are impervious to water. How often one hears "Oh, but water can't get through my soil." Well, then, if water cannot get in, how does it get wet? It is true, clay, already saturated with water, will hold water on the surface like a basin, for a very good reason that *it is already* full of water and cannot take any more.

"But once provide the means of escape from below, and it would puzzle a conjuror to keep the water from sinking through the clay. Tapping the land when full of water, is after all, very much like tapping a cask—the liquor runs out at the bottom, and the cask dries at the top. The deeper the drain or tap, the greater the pressure from above. As the liquor flows, the air must follow.

"Independent of the capillary attraction that assists in causing deep drains to act best, we must consider also, that the deeper the drain *the more steep the decline;* and we all know that water will rush quicker down a steep hill than a gentle slope. Those who consider 1 inch pipes too small should bear in mind how soon such a pipe running constantly, would empty a large pond. It must be bad policy to be at the expense of procuring large pipes where small ones will answer better—no rats or vermin can enter one-inch pipes. It is lamentably painful to contemplate the condition of our heavy undrained lands in winter. Filled with water to the surface, they are wholly incapable of receiving or appropriating the best of manures, the heavenly rain. Every hasty or continuous shower scours the surface, driving down the furrows, in turbid and wasteful streams, the very essence of the soil—while the fertilizing ammonia in the rain itself, finds no entrance there.

"Nor is the appearance of these lands less dismal and distressing in April and May. The blessed sun shines it is true on the saturated soil, but it is dead and impervious to its invigorating rays. The imprisoned water having no escape downwards, can only be released as steam, by evaporation, carrying with it the heat that should warm and invigorate the soil; and leaving behind a clammy and death-like coldness, which is well attested by the sickly and yellow plants. Poor things many die leaving their hardier companions to struggle on, in hopes that a parching summer may do that naturally, by gaping cracks, which man is too poor, too niggardly, too ignorant, or too prejudiced, to effect by cheap and profitable drainage."

Cheap Paint.—If any of your readers wish to use a very cheap and substantial paint, of a drab color without lustre, let water lime be mixed with skimmed milk, to a proper thickness to apply with a brush, and it is ready to use. It is too cheap almost to estimate, and any one can put it on who can use a paint brush. It will adhere well to wood, whether smooth or rough—to brick, stone or mortar, where oil paint has not been used, in which case it will cleave to some extent, and forms a very hard substance, as durable as the best oil paint.—*Cor. of Country Gentleman.*

NEW FENCE.—BOARD AND PICKET.

To the Editor of the Agriculturist.

Clinton, February 27, 1857.

Dear Sir,—I hope you will excuse me for troubling you with a few lines on a subject in which, I have no doubt, you feel an interest. I don't know how what I have to communicate will appear in print, as I write but seldom, and never for the press; but I cannot help thinking that if what I wish to inform you of were universally known, it would be as universally approved of, and, where practicable, adopted. Almost every number of the "Agriculturist," for the past year, has had more or less to say in reference to fences. I perused every article in reference to this subject, with peculiar interest. I confess I was surprised and disappointed at the result of the deliberations of the Agricultural and Horticultural Club, who devoted an evening to discuss the subject, and who, after all their debate and investigation, decided that that most of all objectionable fence, the zig-zag, was *the fence* for the farmer. From such conclusion I did at the time and do now most decidedly differ; cause why? Last summer I had a piece of old fence cedar zig-zag which required repairing, which it did annually, and had done for several years. I was getting tired of repairing it, and resolved to try something new. I looked at the old fence, and these were my cogitations:—I thought there was a deal of material in it, and wondered if it could not be put up some other way. I thought, first, horizotnal; it would certainly take fewer rails, and look better; but then, to my mind, there is no economical way yet discovered of securing the horizontal fence. I then thought, set the rails up endways or perpendicular; yes, but they are too long. Well, saw them off, or rather make two of them—yes, pickets—that's just it. Now for a fence. Move away the old one, get the plough, and make a straight furrow up and down a time or two, till you have formed a straight trench; sharpen one end of the pickets—the sawed end, of course, is square—then drive one in at each end of the trench, in the place and to the height you wish your fence; next drive one in the centre to correspond. But, before you proceed further, it will be necessary to place either yourself or a person with a straight eye at one end of the fence for a time, till you have got some pickets in for guides or sights, which you will soon do by driving a picket in every centre till you have one about every half rod; you can then commence, and fill up the vacancies. Drive in your pickets three inches apart straight till they are even on the top, and no further. When they are all driven in, straight on the side and level on the top, fill up the trench with what you took out of it; then run the plough up and down each side of it, and bank it up as high as you please, and while you are doing it, recollect you are killing two birds with one stone, viz.—a good bank will support your fence, and at the same time form a trench or drain which will prevent the fence from heaving after frost, and serve the adjacent land. You will then get boards one inch thick and six inches wide, nail them on the top of the fence, put a nail in each picket and break joints on the top of a good sound picket which will hold two nails—and there's the fence as firm as a church. Now, Mr. Editor, if that fence is properly put up, I pronounce it the cheapest, the strongest, the neatest, and

best-looking fence that I have seen, read, or heard of. I don't know if I shall be understood, but I claim for this simple fence as being superior to any other dead fence in these three important particulars, viz.—strength, economy, and appearance. If it is so, then it is certainly worthy the consideration of the farmer. I wish I could write as much as I feel in praise of it. In the first place, for instance, in reference to its strength; you can scarcely conceive the strength the six-inch board on the top gives it as a cap—why, that board gives six times the strength it would nailed up any other way, aye, thirty-six times, if you like; in fact, the whole fence offers *very little* opposing force to the wind, the 3-inch spaces allowing it to pass through regularly. Then, as to its appearance, it is neat on account of its uniformity, and has all the advantages of a straight fence; its novel appearance has repeatedly attracted the attention of strangers, who have often stopped to examine and eulogize it. Then, as to its economy. Here we will refer to a few facts and figures, and compare with other fences; and first the zig-zag—it is generally allowed to require 20 rails to the rod, *i. e.*, 8 rails, 1 rider, and 2 stakes to a panel, and 2 panels to a rod. In the board and picket fence there will generally be from 20 to 25 pickets introduced, and only half the length of rails, observe, and not so heavy either. Thus, there is a saving at least of one half the timber and more—quite a consideration, you will admit, where timber is an object. After I had completed my first fence, which I did out of the old one above referred to, I had quite half of the rails left, which first enlightened me as to its economy in material. Then, again, in this comparison, all will admit, when you go into the cedar-swamp to cut fence timber, it is much easier to find materials long enough for pickets which would not do for rails, pickets being not more than six feet long; and in splitting pickets, instead of making them as square as you can, as you would rails, the object would be to make them broad and thin, more resembling staves, *i. e.*, from 1½ inch thick to 2½, and from 5 to 10 inches broad, and you will be surprised how far a little timber goes, and how fast and easy you will get on with it.

And now for the post and board fence, to complete which requires three expensive kinds of material, viz.: posts, boards, and nails. Now, in the first place, there is very near enough timber in the posts to make all the pickets. Observe, posts are two feet longer than pickets, and if each post was split up, I think they would average five pickets each, and this, with the extra length of the post, would complete four-fifths of the picket fence. So much for the posts. Now, in reference to nails, the post and board fence will average 54 nails to a rod, the board and picket, 22—a startling consideration, but *a stubborn fact*. Then, in reference to lumber, the board fence will average 55 feet to the rod, cap and batten, the board and picket, 9. There, Mr. Editor, are a few of the reasons which induce me to prefer my kind of fence to any I have yet seen. Of course it must be understood that no other timber will answer but cedar; but if you or any of your friends could be induced to try a few rods of it this spring, I have no doubt you will think as I do on the subject. My neighbours, without exception, express their approbation of it, and several are preparing to try it. I should be happy, if requested, to furnish any further information regarding

it; but fearing I have tired your patience, (and if I have, I beg pardon for being so prosy,) I hasten to subscribe myself,

Your's most obediently,

G. B. GOODWIN,

Clinton, Township of Goderich, Huron Tract.

P. S.—I hope, Sir, you will excuse me of egotism or presumption, but I can't help telling you that I have another kind of fence in my fancy, which I shall perhaps try this summer, if I live, and if you do not approve of the board and picket, you will of that.

G. B. G.

COST OF TILES AND DITCHING.

To the Editor of the Canadian Agriculturist.

Sir,—Would you do me the favour of giving the following few lines a place in your valuable Agricultural journal, in reference to your correspondent's—East Gwillimbury—enquiries respecting Drainage, and Drain Tile? We deliver Tile on board the boats or the railway cars, *cartage free*, for parties living at a distance from Toronto, and sending us orders to be supplied by either the boats or cars. The cheapest way to get them by the cars is, for two or three persons to join, if one does not want so many, and order a car load—6000 or 8000, according to size; the charge for freight will be less this way, as they take a long time to load and unload, and there may not be any other freight to be left at that station. The kinds most used for field drainage are 2½-inch pipe and the 3-inch horse-shoe; the 3-inch of both kinds are used for contributing drains. Parties wanting Tile should send in their orders as early as possible, stating the kind, size, and the time when they will be required as the business is new, and we wish to form an idea what the demand may be which we will have to supply. Samples will be sent when required.

The cost of digging for a Tile drain is less than for any other kind, the ditch required for the tile being much narrower than for either wood or stones. By getting proper draining tools—which can be got at Mr. James Fleming's, seeds-man, Yonge Street, Toronto—a ditch four feet deep need be only one foot wide at the top, and just the width of the tile at the bottom. This was the width of 150 rods, 4½ feet deep which I laid down last fall, through a very light, sandy loam. I paid 5s. per day, and the drains cost in labour 1s. 3d. per rod.

Your's respectfully,

WM. LEA.

Hard or Soft Water in Cooking.—Nearly every one knows that *hard* water is such in consequence of its containing a small quantity of carbonate of lime, whereas *soft* water is nearly pure. It may not have occured to every one that this difference often becomes an important one in the daily process of cooking. Where vegetables are boiled in hard water, a deposit of this lime is made upon the surface of the vegetables, as peas, beans, corn, &c., by which process the food is not only not so thoroughly cooked in a given time, but even when done is not so well done. It is always harder when cooked, and less healthy. The minute deposits of lime upon the surface of such vegetables not only impairs the taste and diminishes the softness of the food, but also acts unfavourably upon the digestion—an effect important to those in health, and doubly so to invalids. The subject might be expanded at some lengeh, but we merely suggest it and leave it for the reader's consideration, whether a pure soft water is not preferable to hard for all the ordinary processes of cooking.

BOTTS IN HORSES.

To the Editor of the Agriculturist.

Sir,—As the subject of Botts is one but little understood by Farmers, in general, the following observations, taken from Taplin's "Modern System of Farriery," may not be out of place. I know, from personal experience, that mercurial preparations are the only ones to be depended upon, having myself given the Balls and prescribed them repeatedly to Farmers, during the last seventeen years, with great success.

That Botts will destroy the stomach is too plain a fact for any reasonable man to deny. The first symptoms are a "perpetual anxiety for a constant supply of either food or water, but in the midst of all he never looks well. After being some time a prey to them he gets low in flesh, hard in his hide, his coat stares, he always seems dejected, sweats upon trifling exercise, and that sweat perceptibly unhealthy; but when the Botts are strong in number, and come to maturity, the great irritability of the stomach occasions the most excruciating pain. The Horse is not only distressed, as above stated, but is subject to violent periodical pains approaching to convulsions; he displays all the EXTERNAL symptoms of *gripes, spasm in the stomach, stranguary;* he lies down, rises suddenly, looks round at his flanks, which he endeavours to strike with his hind feet, shewing by his actions, as plain as a horse can, where his pain is; but where the evacuations of stool and urine are not suppressed, no doubt can arise as to the cause of it. Before the following Balls are given, let the Horse have a mash of scalded bran and oats, or bran only, morning, noon, and night, the day before you give them; on the following morning give one of the balls, according to the age and strength of the Horse.

Ball No. 1.

Best Aloes . . .	1 ounce.
Ginger	2 scruples.
Calomel	1½ drachm.

Soap or Syrup sufficient to form the ball.

Ball No. 2.

Aloes	10 drachms.
Ginger	2 "
Calomel	2 "

Soap or Syrup as before.

Ball No. 3.

Aloes . . .	10 drachms.
Ginger . . .	2 "
Calomel . .	2½ "

Soap, &c.

Ball No. 4.

Aloes . . .	10 drachms.
Ginger . . .	2 "
Calomel . .	3 "

Soap, &c.

No. 1 is intended for a young horse of delicate make.

No. 2, where the horse is arrived at full age, or shows greater strength of body.

No. 3, for a stout team horse.

No. 4, for a strong, powerful horse.

Too much caution cannot be used in getting the drugs *good.* I regret to say it is too much the practice with many farmers to purchase so-called cheap articles; it is only for a horse, and they seem to think any rubbish will do. Go to a respectable druggist, and tell him you want the best. I have repeatedly known an ounce of

common aloes given to a horse without the least effect, when six drachms of good has given him a complete clearing out.

The next day give a mash of oats and bran on which scalding water has been poured the night before; then feed as before. To make sure work it is well after six days to give another Ball, mashing as at first. This will clear out any that may remain; and if any doubt remains, a third ball may be given six days from taking the second ball. I must say I never found it necessary, but others can do as they choose. I have known the first ball bring away as many as one and even two quarts of full-grown Botts. A farmer in King once told me that a horse of his evacuated a gallon measure full. At any rate, the calomel will kill and the aloes will bring away as many as there are there.

I would caution all Farmers, as soon as the first symptoms appear, not to trifle with it, but give one ball at least, when it will tell its own tale; if it is caused by Botts, you will see them, and if not, your horse may be benefitted and cannot be injured by the taking of it. Above all things, avoid giving whiskey, pepper, train-oil, or any other of the useless abominations generally resorted to.

I am, Sir,

Your's sincerely,

Woodbridge, Vaughan. JAMES ASHDOWN.

Welsh Weddings.—The practice of "making a bidding" and sending "bidding letters," of which the following is a specimen, is so general in most parts of Wales, that printers usually keep the form in type, and make alteration in it as occasion requires. The custom is confined to servants and mechanics in towns; but in the country, farmers of the humbler sort make biddings. Of late years tea parties have in Carmarthen been substituted for the bidding; but persons attending pay for what they get, and so incur no obligation; but givers at bidding are expected and generally do return "all gifts of the above nature whenever called for on a similar occasion." When a bidding is made, it is usual for a large procession to accompany the young couple to church, and thence to the house where the bidding is held. Accompanying is considered an addition to the obligation conferred by the gift. I have seen, I dare say, six hundred in a wedding procession, and have been in one or two myself (when a child.) The men walk together and the women together to church; but in returning they walk in pairs, or often in trios, one man between two women. The last time I was at such a wedding I had two strapping wenches attached to my person. In the country they ride, and generally there is a desperate race home to the bidding, where you would be surprised to see a comely lass, with Welsh hat on head and ordinary dress, often take the lead of fifty or a hundred smart fellows over rough roads that would shake your Astley riders out of their seats and propriety.

Carmarthen, October 2, 1850.

"As we intend to enter the Matrimonial State on Tuesday, the 22d of October instant, we are encouraged by our Friends to make a Bidding on the occasion the same day, at the New Market House, near the Market Place; when and where the favor of your good and agreeable company is respectfully solicited, and whatever donation you may be pleased to confer on us then, will be thankfully received, warmly acknowledged, and cheerfully repaid whenever called for on a similar occasion.

By your most obedient servants,

Henry Jones, (Shoemaker,)

Eliza Davies.

The Young Man, his Father, (John Jones, Shoemaker,) his Sister (Mary Jones,) his Grandmother (Nurse Jones,) his Uncle and Aunt (George Jones, Painter, and Mary, his wife,) and his Aunt (Elizabeth Rees,) desire that all gifts due to them be returned to the Young Man on the above day, and will be thankful for all additional favors.

The Young Woman, her Father and Mother (Evan Davies, Pig-drover, and Margaret, his wife,) and her Brother and Sister (John, Hannah Jane and Annie Davies,) desire that all gifts of the above nature due to them be returned to the Young Woman on the above day, and will be thankful for all additional favors conferred."—*Notes and Queries.*

BONES AND BONE MILLS.

To the Editor of the Canadian Agriculturist.

Paris, C. W., 18th March, 1857.

Dear Sir,—Can any of your correspondents inform me if the machinery for Bone Mills is manufactured in Canada. I have made many enquiries in this neighbourhood, but cannot learn whether there is a Bone Mill in the country. I purpose starting one, and wish information as to cost of machinery, amount of power required, and best place to order the mill gear. Added to which, "your opinion of bone dust as a manure, and different effects of the various sizes of bones when ground," will be thankfully received.

Respectfully yours,
A. W. G.

Remarks.—We are not aware that the machinery for Bone Mills is manufactured in Canada. A Mr. Lamb, near this City, erected a Bone Mill some years ago, and advertised Bone-dust for sale. But we have heard nothing of him or his Mill, for the last year or two.

We have frequently published articles on the subject of Bone Manure; but as we have had but little experience of its benefits, we must refer our correspondent to those authorities where its qualities and uses are stated, from chemical analysis, as well as experimental results.

The following extract from a late number of the *Country Gentleman* may give A. W. G. some of the information he desires :

Expense of a Bone Mill.—Thinking that it might be of interest to some of your readers to know the cost of a good mill for grinding bone, I will give the cost of the one in this city (Albany) belonging to Mr. Thomas Coulson, and which is acknowledged by all who have seen it, to be superior in its operation, at least so far as the quality of the article produced is concerned, to any in this country. Four pairs of cutters are used. The first two pairs cost, with gearing, $300—the last two pairs, without gearing, $600—the necessary belts, elevators, sifters, shafts, pulleys, &c., about $200. The first set of cutters have done about ninety days' labor, ten hours per day, and are now completely "used up;" the second, or last set, have not been in operation so long, but are not expected to perform more than one hundred days' labour. To the first cost of all may safely be added 25 per cent. for repairing, breakages, &c., before they are finally laid aside. The motive power is a ten-horse engine, which, with building, built and used only for this purpose, cost $1500 more.—Charles Bell.

GUANO AND GUANO ISLANDS.

The *Mark Lane Express*, of a recent date, makes the following remarks on the Guano question :—

We are just now at the very height of our guano difficulty. That is to say, this is the season—a most favorable season, too—when above all others we need it; and there is none to be had. One of our most respectable manure-dealers was, for the first time, on Saturday, directly refused. They could not even promise him any further supply. When people have gradually accustomed themselves to the matter-of-course use of anything, the unexpected want of it must be very severely felt. This is the case with the farmer. We want guano as a manure for our barley and oats, and as a top-dressing for our wheat. We have reckoned more or less on our customary allowance, and have consequently neglected proportionately, to provide any substitute. With ordinary care, as we begin to see now when it is too late, we might have fallen back upon our own resources; as it is, however, there is an extraordinary and altogether unprecedented run on such manufactured manures as contain the ingredients required—ammonia and phosphates especially. The makers and dealers are at their wits' end to answer the orders pouring in upon them, and go from one to the other anxiously seeking the material to fulfil them.

Each succeeding year turns up its peculiar subject for discussion. Last year it was agricultural statistics; this it is assuredly the guano monopoly. Almost every one of our leading national societies have already touched upon it. The Farmers' Club, as we have shown, was the first to open the attack; and since then both the English and Scotch Agricultural Societies have given it a prominent place in their proceedings. A fortnight since, Mr. Evelyn Denison, as President of the Royal Agricultural Society of England, was deputed to confer with Lord Clarendon on the subject. We have yet, however, to learn what came of the interview. And only on Monday last a more numerous deputation from the Highland Society paid an official visit to Lord Stanley of Alderley. The object was of course to procure, if possible, a supply of guano from elsewhere; and the first point urged upon the attention of his lordship was the policy of obtaining possession of the Kooria Mooria Islands. These deposits, it will be remembered, have been brought into notice chiefly through the agency of Mr. Caird, who, a week since, at a general council Meeting of the English Society, dwelt at some length upon their value. The representatives of the Scotch agriculturist went on to ask for an exploring expedition; at the same time they warned the Government from sanctioning any further monopoly, as it seems is to be the case with Captain Ord and the Arabian Guano. Still the principle of monopoly is broken through when once we can establish an opposition to it; and the possession of these Kooria Mooria islands might work us good in a variety of ways.

We believe such conferences as these to be all in the right direction—the first step to the attainment of what we seek. It is sheer absurdity to say we must not look too much, or depend much upon the Government here. On the contrary, this is just one of those cases that we must look to the Government; and, moreover, let them know that we depend upon them. Pray who is to help us, or to put such a trade as this upon a proper footing, if our own flag does not? Was it any other business—Manchester, Birmingham, or Sheffield—so interested, their leaders would never stay their exertions until something was done. Neither must ours. The farmer has surely some friends in either House who will keep the question alive for him. But what did these Houses or the Government ever do for the farmer yet? the less sanguine may inquire. Little enough, perhaps. A sufficiently good reason for their doing more now they have the opportunity—and when they may do it, and not merely without injury, but with manifest advantage to themselves and the community.

The following conversation took place in the House of Commons:—

Lord Naas asked the Vice-President of the Board of Trade whether any correspondence had taken place between the Government and Messrs. Ord, Hudson, and Hayes, of Liverpool, relative to the license which had been granted to them, giving them for five years the exclusive right of raising and exporting guano from the three islands of Jibleea, Hanki, and Ghurzoad, on the coast of Arabia; and if so, whether he would lay that correspondence on the table of the House? Also, whether any guano had been raised from the islands, or whether the agents of the licenses had been driven away by the Arabs?

Mr. Labouchere believed the facts of the case to be these:—Some time ago this firm of Liverpool merchants applied for a license to obtain guano from these islands, which had been ceded by the Imaum of Muscat to the Government of this country. The discovery of the islands having guano was made by Captain Ord; and the Government, as a proper encouragement, granted to the firm an exclusive license. They were also informed that, as far as practicable, they should receive such support from the Government as could be afforded to them. At the same time, it was an enterprise of a very speculative nature. The parties to whom the licenses was granted went to the islands and endeavored to procure guano. Unfortunately some tribes residing not 20 miles off, who had a sort of trade there, considered their privileges interfered with. Captain Ord and his party applied for assistance to the Bombay Government; but, unfortunately, the Government of Bombay was unable at the time to give that assistance. A good deal of correspondence had taken place upon the subject, and he trusted arrangements would be made by which these parties would be able to proceed to the islands and test whether they did or did not afford a supply of the important article of guano. All that was needed was, that the Government of Bombay should support Captain Ord by the presence for a few days of a small armed vessel. That was the state of things at present. The Government were fully sensible of the importance of encouraging, by any means in their power, the supply of Guano to this country. He believed an hon. friend would shortly move for the papers, and there would be no objection to lay the correspondence on the table of the House (Hear, hear).

In reply to Sir A. Campbell,

Mr. Labouchere said that the power of granting these licenses was derived from the Queen.

Sir J. Fergusson asked whether in the licenses which granted a monopoly to these gentlemen there was any reservation as to the prices which they should be entitled to charge.

Mr Labouchere said a monopoly was undoubtedly granted to them for five years, of which about four years expired.

RURAL ARCHITECTURE.

In a progressive and enlightened age like this, it is somewhat astonishing that so little effort has been made to improve and beautify the homes of the rural population.

The associations connected with childhood have an important bearing on the conduct of the man, and the recollections of youth form the most agreeable pictures that are impressed on the tables of memory.

The scenes of our childhood, the hopes of our youth, and the aspirations of our manhood come crowding to the mere mention of home. In infancy, consciousness first dawns upon the beauty of nature beneath the greateful shade of its trees, and their memory in after life acts as an incentive to noble action.

There are but few whose eyes will not brighten, and whose pulse will not quicken as the reminiscences of past happy days are brought to mind.

> " How dear to my heart are the scenes of my childhood,
>   As fond recollection presents them to view;
> The orchard, the meadow, the deep tangled wild wood,
>   And every loved spot which my infancy knew.
>
> " The wide-spreading pond, the mill that stood by it,
>   The bridge and the rock where the cataract fell,
> The cot of my father, the dairy house nigh it,
>   And e'en the rude bucket which hung in the well."

With associations similar to these, and with sufficient wealth at their command, a large portion of the citizens of our prosperous country are content to dwell in houses but little if any better than those constructed by the first settlers of our soil; and there to bring up and educate the children, who are to be the men and women of the next generation.

They think, no doubt, that it is for the benefit of those children that they continue to economize and toil; but a few moments' reflection would show that the foundation of all education is laid at the home of our childhood. With the perceptions of order, symmetry, and beauty, awakens the desire for possessions, and with them comes that refinement of manners which distinguish a civilized from a coarse and brutal people. And as the first perception of order and beauty is awakened in most minds by external objects, a comfortable and attractive home has an important bearing on education and refinement.

Like a strong anchor, the mere sentiment of home has saved many a man from shipwreck.

Then, how necessary does it become, for a thinking moral people, to throw every attraction around their home that their means will allow. In this view, the adornment of the Homestead has social and moral influences far beyond the mere gratification of the eye, or the consideration of dollars and cents.

The desire to surround ourselves with the higher sources of enjoyment, rather than be content with mere utility is to acknowledge the existence of a sentiment, which, next to a religious one, is the purest and noblest part of our nature.

A man's dwelling, to a certain extent, may be regarded as a type of his character, and in the aggregate the appearance of the houses, as an index of the people.

Ranlett, in his work on Architecture, observes that, "The house proper, deserves more care and calculation, in its sructure, than a packing box. It is the case in which a man places the objects which are dearest to him; in which he shuts himself from the world to enjoy that portion of it which he can call his own; it is his sanctuary in the time of trouble, his retreat from oppression, the scene of his struggle for life, and the last glimpse of the world."

Doubtless many persons are deterred from endeavoring to render their homes attractive by fear of its involving a large outlay of money. To a certain extent this need not be the case—taste and judgment will point out many additions and ornaments that can be had, which cost but a trifle or a few hours' labor.

The effects of vines, evergreens, and shade trees are not sufficiently appreciated.—Three-fourths of the cottages that have endeared themselves to the hearts of true poets and lovers of nature, have owed their charms to the trees and shrubs and vines with which they were embowered. It is the rural character imparted by this drapery that wins the affections.

Associations of refinement, grace, and beauty, are connected with the occupation of a cottage, where

> "Across the porch, thick jessamines twine,
> And in the garden, myrtles blossom."

A row of evergreens judiciously placed might hide an unsightly object from the view, But nothing can compensate for the want of shade trees around a country house.

In lieu of enclosing the door yard and adjoining field with the ordinary worm fence. how much better it would be to have a hedge—a plain paling—a rough board or even a post and rail fence. Such additions as these, costing little but time, would entirely change the aspect and throw a charm around many a place that now looks cold and desolate. Something of a love for the beautiful is always suggested by a vine covered cottage, because mere utility would never lead any one to so adorn their residence.

A house may be compared to a woman. A great deal of money might be expended in rich dressing, which would add, if properly applied, to the attractions suited to the taste of some persons, but when neatly and tastily dressed with well fitting garments, there is a charm that all will acknowledge; and to carry the simile a step further, if slovenly dressed, a dislike is sure to be produced.

There is a misapprehension of the requisites of beauty in a dwelling; most persons think to embellish a house would be very expensive—this need not be the case. An expression of beauty can be given to the simplest farm house. Even a common log house may be made attractive.

Our country houses should embody such ideas of order, beauty, and truth as shall elevate and purify the mind. A building may completely answer the useful requirements of man, and yet not give a ray of pleasure or satisfaction to his heart or understanding.

Visit your Schools.—You could not do a better thing. Your boy has the idea that you care scarcely more than a fig's value about his progress there; your girl thinks you are too busy about *more important* matters to worry about her recitations. Grammar is dry as dust to her, geography is tedious, arthmetic is a bore, reading is horrid, writing is her special abomination. If she speaks of either at the table, she is hushed up. You talk of stocks and senatorship, of the war and free trade. The young ones learn to think their studies very small matters in comparison with yours.

But visit your school to-day. Hear a lesson or two recited. Learn from their teachers what their standing is, in what they oftenest fail, and in what they excel. See who sits next to them in the school-room. See how they compare in personal appearance, whether they look happy and at home. If accquainted with their school habits, you cannot but be interested in them, and then you cannot possibly avoid talking of them. Making these matters subjects of home conversation will certainly stimulate them to better efforts—make better scholars of them. By all means, then visit your schools. Go alone, if no one will go with you. You will always be welcomed by the teacher, unless he is a fit one to be turned off.

TO IMPROVE FARM-YARD FOWLS.

Mr. C. N. Bement of Rochester is the author of a useful book on Poultry. In a recent communication to a Rochester journal (*R. N. Yorker*) he thus discources on the subject of improving barn-yard fowls:—

Every one is aware, or should be, of the fact that, generally speaking, the fowls commonly kept by our farmers are but poor specimens of the race—are small in size and usually but indifferent layers. Neither the inferiorty in their size, nor their poor egg-laying qualities are, however, to be attributed to the kind of food they receive, for farmer's fowls generally fare pretty well, particularly in threshing time, nor to any want of attention; but to the fact that in very many cases the stock is never changed, or if changed at all, so seldom as to be productive of no good results. Thousands of miserable, weak-minded people, idiots, lunatics, attest the evil results of marrying between blood relations. If such be the consequences resulting from "breeding-in-and-in," as it is generally termed, from the human family, will not the same principle apply to fowls? Will not a stock of fowls, let us ask, degenerate from year to year, both in size and other good qualities, if no additions from other varities or yards are made? Look to the chicken commonly called "dung-hill fowl," a variety more generally had than any other kind in this country, and which, although small and comparatively of little value, were doubtless, at one time, in every respect equal to those for which such enormous and unwarrantable prices have been paid.

The reason of this degeneracy is very easily explained. The idea of improving the breed of fowls rarely visits a farmer's mind; and in the multiplicity of duties resting upon him, he does not think it a matter of sufficient importance to change the cocks with neighbors, or to kill off his old ones and purchase new. This is a great error, as we shall endeavour to show by facts gathered from experience.

We are convinced, from our own experience and observation, that by changing the plan of breeding of chickens we can materially improve them in some essential particulars, by procuring the very best cocks that can be found, paying attention to size, form and vigor only—color being a secondary consideration. Then, by selecting the finest formed and largest pullets of the previous season, cross them with selected cocks, provide comfortable quarters for them during the cold weather, and feed them well with *animal* and other good, subtantial food, and, our word for it, you will receive in return a fair supply of eggs. None of the young cocks should be retained; they should either be sent to market or "to pot." The old cocks should be displaced and an entire new supply of young ones procured, of the best size and form that can be purchased. To give them size at once we should advise a cross with the Dorking, or any of the Asiatic tribes, the Brahma or Cochin for instance. Some of the finest fowls we have seen were a cross of Dominique on the Cochin and Brahma. To keep up vigor and stamina, we would recommend on occasional cross with larged sized Game cocks. By pursuing this system every spring, or, at least, every other spring, the progeny would attain a size superior to their progenitors. Their constitution and laying qualities would certainly be much better.

The third year the chickens will not only be greatly improved in size and appearance, but in the quantity of eggs from the same number of hens. This plan pursued, or even that of selecting the largest and most vigorous cocks of the common "dung-hill," we cannot but commend to our farmers generally, as the fowls will be one-half larger, and cost no more food or trouble to keep them, and when sent to market they will command a much better price.

It is hardly neccessary to draw the attention of breeders generally, to the fact—how few animals *maintain* their superiority for a series of years in any particular variety. All being of the same blood their offspring are puny, weakly, and highly susceptible to disease. This can only be obviated by procuring the cock birds from another strain or family, and if well selected, there is little fear but there will be ample cause for self-congratulation as to their produce.

If we were to give what we consider the points of excellence desirable in fowls, we would say—they should have a small head, beautifully poised upon a taper neck, which sweeps in a gracefully expanding line to the broad shoulders. The breast must be very full, round and prominent, like that of the Durham cow, broad and well developed in the cock; the body square, the legs light-colored and small. They should be of good size, quick of growth, hardy, meaty, and fit for the table at an early age; abundant layers, especially in winter, good mothers, and quiet in their habits and disposition.

The chicken cocks, or cockerels, will be first ready for killing, and they should all be killed during the first season; then the extra or old cocks, and lastly the pullets, which are not required to recruit the stock. The old hens should be killed before they are three or, at the furthest, in their third year, as after that they are nearly worthless.

CHINESE SUGAR CANE.

As many of our Subscribers will probably attempt the cultivation of this new plant, we desire to give them all the reliable information in regard to it, that has fallen under our observation. With this view, we publish the following "Circular," from the United States Patent Office:—

United States Patent Office, Dec. 10, 1856.

Sir:—This new plant seems to be destined to take an important position among our economical products. Its seeds were sent, some sixty years ago, from the north of China, by M. de Montigny, to the Geographical Society of Paris. From a cursory examination of a small field of it, growing at Varrieres, in France, in the autumn of 1854, Mr. D. J. Browne, then on a mission from this Office for collecting agricultural information and products, was led to infer, that, from the peculiarity of the climate in which it was growing, and its resemblance in appearance and habit to Indian corn, it would flourish in any region wherever that plant would thrive. From this source, he obtained some 200 pounds of the seed, which was distributed in small packages, by this Office, among the members of Congress, with the view of experimenting with it in all parts of the Union, and thereby ascertaining its adaptation to our soil and climate. In numerous instances, the results proved highly satisfactory, as it attained the height of 8 or 10 feet, as far north as St. Paul's, in Minnesota, and matured its seeds at various points in Massachusetts, New York, Pensylvania, Illinois, and other places further south. The following year, while in France, on a similar mission as above, Mr. Browne obtained several bushels of the seed of this plant, grown from that reputed to have been brought from South Africa, by Mr. Leonard Wray, of London, and which has since proved to be identical with that obtained by this Office in 1854.

There appears to be a doubt among many in Europe, as well as in this country, as to the true botanical name of this plant. M. Louis Vilmorin, a scientific cultivator, of Paris, provisionally gave it the name of *Holchus saccharatus*, which had previously been applied to the common broom-corn, if not to other species, or at least varieties, of some allied plant. He also conjectured that it might be the *sorghum vulgare*, (Andropogon sorghum of others,) and thought that it might comprehend a variety of it, as well as *Andropogon cafra, biscolor*, etc., of Kunth. Mr. Wray, who has devoted much time and attention to the cultivation of this plant, with the view of extracting sugar from its juice, at Cape Natal and other places, states that in the south-east part of Cafraria, there are at least fifteen varieties of it, some of them growing to a height of 12 or 15 feet, with stems as thick as those of the sugar-cane (*Saccharum officinarum.*) M. Vilmorin, also, says that, in a collection of seeds sent to the Museum of Natural History at Paris, in 1840, by M. d'Abadie, there were thirty kinds of Sorghum, among the growth of which he particularly recognized several plants having stems of a saccharine flavor. Others are of the opinion, that the common broom-corn, (*Holcus saccharatus,*) the chocolate or Guinea-corn, (*Sorghum vulgare,*) and the Chinese sugar-cane, (*Sorghum saccharatum,*) all of which, containing more or less saccharine matter, belong to the same species, but are variations caused by differences of soil and climate, or by a disposition to sport, after the manner of Indian corn and other plants under cultivation. The Chinese sugar-cane, however, differs from the others, in containing a far larger proportion of juice, and consequently is more valuable for fodder and other economical uses.

In 1766, a plant analagous to the one in question, was experimented on at Florence, in Italy, by Pietro Arduino, for the extraction of sugar; yet it must have been of a different variety, as he describes its seeds as of a clear brown colour, while those of the Chinese sugar-cane are of a shining jet-black, and in appearance identical with those of the sorghum vulgare, of the old collections.

Description and Habit of Growth.

The Chinese sugar-cane, when cultivated on ordinary land, in the United States, somewhat after the manner of broom-corn, grows to a height of from 8 to 16 feet, while in

Europe it does not attain much more than half of this altitude. Its stems are straight and smooth, often covered with a white bloom, or down, having leaves somewhat flexuous, falling over, and greatly resembling in appearance those of Indian corn, but more elegant in form. When cultivated in hills, containing eight or ten stalks each, it puts forth at its top a conical panicle of dense flowers, green at first, but changing into violet shades, and finally into dark purple, at maturity. In France, and the central and northern sections of the United States, it has thus far proved an annual; but from observations made by M. Vilmorin, as well as some experiments in our Southern States, it is conjectured that, from the vigor and fullness of the lower part of the stalks, in autumn, by protecting them during the winter, they would produce new plants the following spring. It stands drought far better than Indian corn, and will resist the effects of considerable frost without injury, after the panicles appear, but not in its younger and more tender state. If suffered to remain the field after the seeds have ripened and have been removed, where the season is sufficiently warm and long, new panicles will shoot out at the topmost joints, one or more to each stalk, and mature a second crop of seeds. The average yield of seed to each panicle is at least a gill.

Cultivation.

Since its introduction into this country, the Chinese sugar-cane has proved itself well adapted to our geographical range of Indian corn. It is of easy cultivation, being similar to that of maize or broom-corn, but will prosper in a much poorer soil. It does not succeed so well, however, when sown broad-cast with the view of producing fodder, as it will not grow to much more than one-half of its usual height. If the seeds are planted in May, in the Middle States, or still earlier at the South, two crops of fodder can be grown in a season from the same roots—the first one in July, to be cut before the panicles appear, which would be green and succulent, like young Indian corn, and the other a month or two later, at the time, or before, the seed is fully matured. In the extreme Northern States, where the season is too short and cool for it to ripen in the open air, the cultivator will necessarily have to obtain his seed from regions further south. If it were important for him to raise his own seed, he could start the plants under glass, in the spring, and remove them to the field or garden at about the period of planting Indian corn, after which they would fully mature. One quart of seeds are found to be sufficient for an acre. If the soil be indifferent or poor, they may be sown in rows or drills about three feet apart, with the plants from 10 to 12 inches asunder; but if the soil be rich, they may be planted in hills, five or more seeds to each, 4 or 5 feet apart in one direction, and 3 or 4 in the other. The plants may be worked or hoed twice in the course of the season, in a similar manner to Indian corn, any suckers or superfluous shoots, which may spring up, may be removed. The seed should not be harvested before it acquires a dark or black hue. Should the plants lodge, or fall to the ground, by the excessive weight of the heads, during storms of wind or rain, before the seed matures, they may remain for weeks without injury. In collecting the seed, a convenient method is to cut off the stalks about a foot below the panicles, tie them up in bunches of twenty-five, and suspend them in any secure, airy place, sheltered from the rain. If intended solely for fodder, the first crop should be cut just before the panicles would appear, and the second, as soon as the seed arrives at the milky stage. It may be tied up in bundles, shocked and cured, like the tops or stalks of Indian corn. If not intended to be employed for any other economical use, after the seed has been removed, and the weather be cool, and the average temperature of the day does not exceed 45° or 50° F., the stalks may be cut up close to the ground, tied in bundles, collected into shocks, or stowed in a mass in a succulent state, for fodder in sheds or barns, where they will keep without injury if desired, until spring. In this condition, however, the lower parts of the stalks will be found to be quite hard and woody, and will require to be chopped into small pieces for feeding.

Precaution.

Particular care should be observed not to cultivate this plant in the vicinity of Dourah corn, Guinea corn, or broom-corn, as it hybridises, or mixes freely with those plants, which would render the seeds of the product unfit for planting.

Yours, very respectfully,

CHARLES MASON, *Com'r.*

THE HAW-THORN.

All ye wha pride in Adam's trade,
Wha swing the scyth, or wield the spade,
Or ply the crooked pruning blade
The trees amang;
Listen, O brither o' the trade,
And hear his sang.

And ye wha broke in Buck and Bright,
To haul the logs togither right,
And fit them sae to burn up right,
And clear the land;
Come, also hear a brither wight,
Won't keep you long.

And ye wha's got your farms a' clear
From trees and log heaps, stumps an' gear,
And in your pocket snugly thare
Your free clear deed,
And hate to see a neighbor near
In ony need.

You are the chaps I want to tell,
That I have good Thorn Plants to sell,
From six inch high unto an ell
Of good Scotch measure,
And raised from haws I growed mysel,
With pride and pleasure.

But as I have but little room
To grow so many things upon,
You will oblige by coming on
To help to clear
A piece to plant potatoes on,
In this same year.

True Scotchman will remember well
The bonnie hawthorn o' the vale,
And trysting thorn far in the dale,
Where he met Maggie,
And there his tale of love did tell—
Ca'ed her his lady!

I've seen my ain Meg's cheek most burn,
When looking at the flowering thorn,
I raised to dry her hippens on
At log-house door.
We've left that place, and sair she mourns,
Its bonnie flower.

She says 'tis lovely green in May,
In June 'tis white, in July gray,
In autumn red, with haws so gay,
The birds sing in it,
The mavis and the blackbirds lay,
Aye, and the linnet.

And now I'll tell you what I mourn
Is, you care little for that thorn;
But hark ye, lads, you'll take a turn,
And wish that had ye
Ta'en advice and had not spurned
The thorn so hardy.

If you will plant out twenty trees,
In some snug spot, 'twill please your bees,
Your wife and daughters, and will ease
Your lugs from ringing,
When they on them with looks that's pleased
The hippens flinging.

Plant twenty trees one rod apart,
In twenty years with little art,
With twenty thousand you may start,
To fence your farm;
In seven years more no bull nor brute
Could do it harm.

I sowed some seeds in '33,
And from the produce of one tree,
I've fifteen thousand, you may see—
Fine thriving plants;
Now that is hint enough to gie
To them who wants.

I will spare twenty for one dollar;
And if your mistress grudge the siller,
Look back to Maggie's colour,
Then ask your wife,
And then as soon as comes good weather
I'll see you baith.

And mair than that, they're acclimated,
Although its hard to get it stated,
Folks won't believe, and *hae me rated*
Oft and again,
Because I say they're over-mated
Canadian.

They're not so apt for to get lousie;
Fifty for one I can grow easy,
Tried all the sorts, nor am I lazy;
But try again
A maxim is with old and prosy
John Williamson.

Preserving Eggs.—I am convinced from numerous experiments, that eggs may be preserved in corn meal or bran than in any thing else. Mrs.———, the lady knitting in the other corner there, last fall put down some twenty dozen, small end down, and only two came out worse for resting. To this present sitting, some four months, they are "good as new." Salt does not do as well.

Horses and Oxen for Farm Labor.—The Trustees of the Massachusetts Society for Promoting Agriculture, have offered a premium of two hundred and fifty dollars "for the best practical essay on the comparative economy of horses and oxen for farming purposes in Massachusetts;—the offer of said premium to remain open until the first of January, 1858, and the premium not to be awarded for any essay which shall not be considered by the Trustees of sufficient practical value to be worthy of publication in the Transactions of the Society."

CULTIVATION OF THE BEAN.

The *Bean* is much more extensively cultivated in the neighbouring States than in Canada. It may be profitably adopted as a field crop upon many of our light soils. We copy the following remarks on its culture, from one of our exchanges, the *R. N. Yorker.*

For a few years, in those portions of the State, where the enemies of the wheat crop have rendered the production of that cereal a labour of risk, and oftentimes a loss to the cultivator, much attention has been given to the growth of various grains, roots and plants as a substitute therefor. Among those which have assumed a prominent position, as regards freedom from pernicious and destructive insects, profitable returns for time and labour expended, facility for marketing, yield of provender for farm stock, etc., will be found the bean.

In the culture of the bean, the soil should be one of a light loamy texture, of at least medium fertility, and needs fine tilth, as well as cleanliness at the hands of the cultivator. What is known as a quick, dry soil, seems to be the desideratum sought for by most of those engaged in its production. Upon clay or retentive lands, the crop is liable to be severely affected by droughts or heavy rains—a superabundance of moisture injuring the pods nearest the ground by rot. In addition to the benefits derived by the crop from a judicious selection of soil, the cultivator will find that land easily kept friable and free from weeds, will lighten labour materially. If manure is used, it should be well worked in, and it were better if applied some time previously to planting, as decaying matter tends rather to the development of straw, than the formation of seed.

The preparations for *planting*, as well as the *after-culture* of the bean, should be most thorough. The ground needs to be well pulverized, and if retentive of moisture, ought to be ridged. Hill and drill planting are both followed—with about equal success as to product—but we are inclined to think that the former mode involves the greatest amount of labour. All danger from frost should be over before planting, as the bean is not hardy.

The common practice in planting, is rows three feet apart, and in hills about one foot distant. Should the rows be brought nearer together, it would be well to give more space between the hills. The distance given, however, is as close as can be worked to advantage where the cultivator is used; where the hoe is depended upon, 20, or 24 inches will cover the ground better. The last of May or first of June will be found a propitious time for depositing the seed. When planted in hills, from 4 to 6 beans is sufficient. In drill planting, from 3 to 5 pecks are used. Many farmers plant the bean in rows or hills, alternate with corn, and seem to think that advantages are derivable from such procedure.

As, in the culture of any new branch of the farm economy, a diversity of opinion is apt to exist, and detailed experiments are worth more than all that can be said theoretically, we are induced to note the conclusions of a few of those who have given the subject attention. A Chautauque County friend writes:—"I do my work the last day in May. Plough and harrow the ground smooth, mark out in shallow furrows, about two and a-half feet apart, with a corn plough, then drop the beans, two or three inches apart, in the furrow. I can plant, with the assistance of a couple of hands, four acres per day in this manner. When the young plants are three or four inches high, use the cultivator, and weed and hoe them well. When about eight or ten inches high, use the common plough, turning the soil against the vines. I sometimes sprinkle my beans with plaster when I hoe them. Average yield, twenty to twenty-five bushels per acre. Save the vines to feed the cattle. I have wintered cattle and kept them in good order, with little else than bean straw, the cattle consuming the product at the rate of about one and one-third acres per head."

In Orleans County, where much space is given to its culture, the planting is usually done with machinery manufactured for the purpose. A man and boy will plant twelve acres per day. One bushel is the quantity used for seed. Variety—the "medium white." Average yield, 18 to 20 bushels per acre.

The time of harvesting has arrived when the pods turn yellow, and the beans should be pulled and stacked. If the weather is fine it will prove of benefit to place them in rows for a few days, that partial curing may ensue. Care must be exercised that sharp frosts do not catch them still in the ground. To stack them, drive a stake in the ground, cover the earth with something that will keep the beans from it, and lay the beans about

the stake, the roots toward the centre, and cap with some material that will keep off the wet.

Another mode, and a very convenient one, is to cut crotched sticks, about two feet below the crotch, and four and one-half feet above, sharpening the lower end, which should be driven securely into the soil. The crotches should not be abrupt, but taper gradually and be strong. Upon these stack the beans in layers, head and root alternating, then bind across from the tops of the stack. These can be protected from rain by any slight covering, and as the stack is elevated and the straw drooping, it will soon shed moisture should it become wet.

The analysis given below, by Professor Emmons, of the "White Kidney Bean," and that of Einhoff, of the "Field Bean," will exhibit the amount of nutriment they contain:

	Kidney Bean. Emmons.	Field Bean. Einhoff.
Starch	36.74	50.1
Legumen	18.60	
Albumen and Caseine	9.92	11.7
Fibre	15.42	
Sugar and Extract	7.20	8.2
Water	13.25	15.6
Husk		10.0
Loss		4.4
Total	101.13	100.00

The bean is not an exhausting crop, but possessing a large leaf system, derives a considerable portion of its subsistence from the atmosphere. With clean and careful culture the soil, instead of being impoverished by a crop of this nature, will be left in the best possible condition for subsequent productions.

TRANSACTIONS OF THE BOARD OF AGRICULTURE, 1856-57.

Two sheets of the "Transactions" will be found to accompany the April number of the *Agriculturist.* Each subscriber to this Journal will be supplied with the remaining sheets as they are published, until the Volume for 1857 is completed. We cannot state the number of pages the Volume will comprise—probably not less than 350. The page is not quite so large as the *Agriculturist;* but as the paper has a larger margin, there will be no difficulty in binding the two works together at the end of the year. The *Transactions* not being of a miscellaneous or serial character, each sheet will contain the whole or part of an Essay, Report, &c., as the case may be—the subject being continued in the next sheet. The successive sheets should be carefully preserved till the end of the year, when they may be stitched or bound together.

The Volume begins, as our readers will observe, with a Prize Essay on the Agricultural Resources, &c., of the County of Simcoe. It is unquestionably the fullest and most reliable account of this new and important County that has yet been published. When each County of the Province has been treated in a similar manner—and the annual Prizes of the Board seem well calculated to draw out the information—we shall have the materials for compiling a fuller, more reliable and more valuable history of the industrial resources and agricultural capabilities of the Province, than it is possible to obtain by any other means.

We hope the readers of the *Agriculturist* will respond to our efforts to diffuse valuable information, by inducing their neighbours to send along their *half-dollars.* Surely we are giving *more* than value for the money this year.

Brain of the Horse.—Dr. Dadd, Veterinary Surgeon of Boston, and Editor of the *American Veterinary Journal,* has sent us a large and well executed lithograph, representing two views of the Brain of the Horse: one exhibiting the "Arteries at the base of the Brain," coloured; the other the "Base of the Brain, showing its nerves." The Price of the lithograph is $2. A copy may be seen at the office of the *Agriculturist.*

We observe that in the list of "Exchanges" published in the *Veterinary Journal,* the subscription price of the *Agriculturist* is set down at *two dollars per annum,* just four times too much!

Fresh Seeds, &c.—We beg to direct the attention of our readers to Mr. Fleming's advertisement. We know that Mr. F. takes great care in the selection of his seeds; and being well established in his business, orders may be sent to him with confidence.

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AGRICULTURAL AND HORTICULTURAL CLUB.

ORCHARDING.

The following is the paper read by Mr. George Leslie on Thursday April 3d, at the meeting of the Central Horticultural and Agricultural Club, in continuation of a former paper, on Orcharding and Fruit Culture:—

In my remarks on orcharding and fruit culture on the 5th March, I endeavoured to explain briefly the nature, and the process of preparing the ground, planting distance, mulching, pruning, &c., I proposed in continuation of the subject, to make a few observations on the following important points, namely: Manuring and after management of an orchard, diseases, costs and profits of an orchard, with a few remarks on gathering, preserving and marketing of fruit.

First then, MANURING AND AFTER MANAGEMENT OF AN ORCHARD.

Where the soil for an orchard has been properly prepared and cropped with green crops, the manure necessary for growing these crops will naturally help the trees; but no season should be lost without annual manuring of the trees, and this should be done early in November. It may be done cheaply and expeditiously in the following manner: Take a waggon load of barn-yard or stable manure, driving close along-side one row of trees after another, throwing out about a wheel-barrow full more or less, according to the size of the tree, and the next November it should be dug in by a fork, and renewed every year. The kind of manure should be changed two or three years after the orchard is planted. There are manures and composts of various sorts recommended for fruit trees, all of which are good if properly applied. For the last ten years I have used swamp muck, ashes, leached and unleached, cow-dung and lime, all mixed together and laid over for a year, and find it superior for all-kinds of trees. The lamented Dowing, who has done more than ony other man to create a taste for fruit culture, recommended the following mixtures for fruit trees after they are well established in the orchard: For apple trees, to every cart load of muck or peat, five bushels unleached ashes, and two bushels good air slaked lime; for pear trees, to every cart load of peat and ashes add a bushel of ground bones; for plums the same, adding a peck of salt. These, I believe, will produce the fariest fruit, and are not so liable to create insects as pure manure. Indeed, how to prepare and apply manure is a matter in which every cultivater of the soil must feel interested. It matters not to what expense and trouble we go to procure the finest fruits and vegetables, unless we study the nature of our soil and the manure to apply to it, we must fail to a certain extent. Solid manures and composts of every kind should be applied in the autumn so that during winter and spring they may be dissolved and fitted to yield nutriment to plants when active growth commences. The snow and rains of winter and spring dissolve and wash down its most soluble parts, and place them within the reach of the roots by the time they are ready to take them up. These are the main points with regard to manure, and the remark is merely intended to draw attention to their importance.

Young trees when they start to grow, should receive an annual pruning and washing of their stems and the thick part of the limbs with soft soap reduced one-half, and also a scraping and cleaning from filth of all sorts from the bark of the trees, to prevent the lodgment of insects. After management of trees consists in the cultivation of the soil among the trees, and pruning them to regulate their growth. For the first five or six years after planting, the ground among orchard trees may be advantageously cropped with potatoes, turnips, carrots and mangel wurtzel. This will assist in defraying the expences of the orchard. Grain crops should never be planted among trees, as they prevent the circulation of air which is so necessary to them. There is one fatal error common to most people in planting fruit trees, which is, that they never can get trees tall enough. When they go to the nursery to procure trees they pick out those that have eight to nine feet stem. Such trees, let me tell you honestly, will never be profitable, because, if they live, when they begin to bear, they get top-heavy, and the fruit is sure to be blown off by storms. Standard trees for a good profitable orchard should never be more than four feet stem. The plough will get as near to the roots of trees four feet high as it should to trees ten feet high. I make these remarks here in order to show, if possible, the foolishness of having high stemmed trees for a profitable orchard.

Diseases.—In addition to the obstacles of the cultivation of fruit, the special difficulties of diseases, and the attacks of insects require to be well attended to. The work of destruction from either of these causes is often rapid and complete, but if watched, and proper remedies applied promptly, each of these may generally be overcome without great loss. The great evil is delay; insects multiply with such astonishing rapidity, and diseases spread so rapidly, that the dilatory man sees his fruit and his trees pass away before he is fully awake to the danger. Be sure to meet these foes at their first appearance and commonly you will get the better of them but if once they get established it will be hard to get rid of them.

Fire Blight—is a disease that is not very common in apple orchards in this country, but in the States of New York and Ohio, three years ago, it threatened to destroy thousands of orchards, and cut away all the pear trees about Cincinnati. Its ravages are confined to apple, pear, and quince trees. I have heard no complaint about the disease among apple trees in Canada, but I have seen great ravages done by it among pear trees, large and small, in my own nursery. It generally makes its appearance on the young shoots, or smaller branches, causing them to turn black and die in a few minutes. It is very contagious, and spreads like wild-fire, and the only remedy is quick amputation and that without hesitation, down to the ground, if required.

Black Knot or Wart on the Plum.—This disease is trully fearful in some sections of the country. I travelled a good deal during the last winter, and found the plums dying everywhere. Its first appearance is in the shape of a wart during the summer, and increasing during the growing season, which in winter becomes black and very unsightly, as far as my observation goes. It is pretty nearly confined to the common blue plum, so much grown in this country.

The remedy for this is the same as for fire-blight—namely, cut off all affected limbs, and burn them. I have found no difficulty in keeping my trees free from it, by cutting the wart clean out with my knife, and applying a plaster of cow-dung and ashes.

Bursting of the Bark of Cherry Trees.—This is a disease common to all cherry trees in Canada that have a high naked trunk. It is supposed to be caused by the action of the frost and sun in the month of March. I find by various accounts from different parts of the country that dwarf trees are not subject to the bursting of the bark; and I am inclined to this belief, as my own dwarf trees have always kept free from it.

I have known cures by removing the dead bark and gum, and applying a plaster of cow-dung, tied round with a bandage to keep it in its place. Mr. Barry prefers a plaster of grafting-wax, or a solution of gum shellac put on with a brush, as recommended by Mr. Downing.

Insects that are Injurious to Fruit Trees.—Bark Louse.—This is a brown flat scale, often the same colour as the bark of the tree, and is not seen easily unless looked for. It attaches itself to the bark of the tree, and is more injurious to apple trees than any other insect. It preys most severely on sickly stunted trees. Where they are thick, the only remedy is to scrape them off with a sharp instrument, and wash with soft soap and tobacco juice.

The Apple Tree Borer.—I find this insect is troublesome in some sections of the country. I never heard of it doing any harm in this neighbourhood, until last year, though it has been known in the States for a number of years. Downing says it is a striped brown and white beetle, and is three quarters of an inch long. It deposits its eggs in June, in the bark of the tree near the ground. Here the larva is hatched, and becomes a whitish grub, which saws its way into the tree, sometimes girding it completely round. The most effectual method of destroying it, is to insert a small wire into its burrow and kill it.

Since writing the above, I have received a communication from W. Allan, Esquire, Cheltenham, wishing information about a certain insect that destroys great numbers of fruit trees in his neighbourhood, working its way between the bark and the tree, eating the inner bark, and sometimes girding the trees all around. This I think is nothing more or less than the apple tree borer described above. When lately in Streetsville, a gentleman told me that he had lost a number of trees by the same insect. Trees in the neighbourhood where this insect works, should be kept clean and smooth near the ground thereby preventing a lodgment for the eggs, with a sharp look out with a wire or a shoemaker's awl, piercing into all the small holes.

The Apple Worm.—This insect deposits its eggs in the eye or calyx of the young fruit. The grub is there hatched, and eats its way into the fruit, leaving behind it a brown powder, the fruit sometimes dropping off before it is half grown. Early apples are more subject to be affected than late ones, because they are in a more forward state when the eggs are deposited.

Professor Harris says, when the fruit falls to the ground, the grub leaves immediately prepares itself a place in some crevice in the bark of the tree, and spins a paper like a cocoon in which it spends the winter, and comes out in spring. There are two ways of destroying this insect—one at pruning-time in April, to search carefully for the cocoons and destroy them, the other is to pick up all fallen fruit and feed them to the pigs, or otherwise destroy them. The increase of this insect is creating great alarm among fruit-growers in the Southern States.

Caterpillars.—Of these there are many kinds more or less destructive to fruit trees; some are large, jet-black, and others striped of all colours. They are soon observed, and when they commence feeding on the foliage, they weave themselves a bag to live in during the heat of the day. In the evening they spread out on the leaves till they fill themselves, then return to their bag again. They are easily destroyed by cutting off the branch they live on, or take bag and all, and put them in a tub of water.

The Cherry and Pear Slug.—This is a most destructive insect, which appears for the first time in June and July, and a second brood afterwards. They are small, slimy, dark brown insects, like snails, on the upper sides of the leaves of cherries and pears, and sometimes on plums and quinces. They devour the leaves rapidly, leaving only the bare net-work, which stops the growth immediately. We destroy them by throwing dry earth, ashes or lime on them with the hand, and if they are looked after in time, they are easily overcome.

The Curculio, or Plum Weevil.—This is a small greyish brown beetle, a quarter of an inch in length, with wings and power of flying, but is not at all active, and by jarring the tree, or a branch of it at a time, they suddenly fall to the ground, draw in their legs and appear to be dead. It is the most troublesome of all insects injurious to fruit. They destroy nine-tenths of the plum crops all over America, and sometimes attack the peach, nectarine, apricot, and even the cherry. I shall say but little about this worst of all insects; it has baffled the world; volumes have been written about it, and no effectual remedy found out. The only, but too troublesome way to destroy them, is by spreading a sheet under the tree, and shaking or jarring it. This operation must be done about dark in the evening, or very early in the morning.

There are a few animals that are injurious to fruit trees.

Birds.—The early cherries are generally the greatest sufferers from birds, and various modes are taken to frighten them away; but as a general thing, birds do more good than harm, as they pick up insects that would otherwise destroy a large quantity of fruit and vegetables.

Field Mice.—The most effectual way to prevent depradations from field mice, is clean culture. If you leave no grass, weeds, rubbish, heaps of brush or stones around the

garden or orchard, the mice will not trouble you. A good old plan, also, is to tread the snow after falling.

In these few remarks on diseases and insects, I only mention those more common in our own country.

Cost and Profits of an Orchard.—For information on this subject, I must go abroad to older countries and older fruit-growers than we are, and in doing this, I think I cannot quote or refer you to a more intelligent class of fruit-growers than "The Fruit-Growers' Society" of New York State, and I may say a more intelligent convention perhaps never sat in any country, to discuss the costs and profits of Orcharding. This congress of fruit-growers was composed of two members from each county in the State of New York. They met at Rochester, and sat two days, in February, 1856. Their proceedings are published in a pamphlet form, and ought to be in the hands of every fruit-grower in the country. I think I cannot do better here than to allude to some of their remarks on the profits of fruit-culture, as applicable to our own country. The first question discussed was, "Can the cultivation of fruits for market, on an extensive scale, be recommended to the farmers of Western New York."

[Mr. Leslie read at some length from the report of the New York Convention, but as the circumstances of the two countries are somewhat different, it is enough to state that the conclusion arrived at was, that fruit-growing was profitable; we need not quote the extracts.]

I have now endeavoured to give you the experience of the older and more intelligent fruit cultivators in the States, in order to show the cost and profit of fruit-growing; and I believe they are correct in all they say. They estimate the value of fruit so low, that any one must believe it. They, however, boast of the fair complexion of their fruit; but I am proud to say we can beat them in Canada in what Downing calls "the renowned fruit of the civilized world," the apple. I know this, as I have seen theirs and ours side by side more than once at our Provincial Exhibitions; and some gentlemen here present know this to be true. The object of this Society is, and always should be, to elicit all the information on the subject we can, and bring it publicly before the people of this country. We should at once establish a Provincial Pomological or Fruit-Growing Society, the object of which should be the advancement of the science of Pomology and the art of Fruit Culture, to meet once a year where the Provincial Exhibition is held, and each county to send one or two delegates with specimens of fruit, with all local names to be corrected by this Society.

Gathering, Preserving, and Marketing of Fruit, are questions of the greatest importance to the fruit-grower, and are worthy of serious attention. How many of those who have orchards, and a little fruit to spare, know how and when to gather it, in order to secure a good price and ready sale? Those who grow for the market, must, therefore, make up their minds at once to prepare their fruit properly, just as farmers prepare their other productions for market. I always observed that when fruit is offered in barrels or baskets without a bruise, it commands a good price; while another, who has shaken his fruit, thrown it into a waggon-box, and brought it into the market in this condition, can hardly give it away. All the fruit that is grown, and ten times as much more, would not be enough to supply the public wants, was it all properly ripened and cared for. With a majority of those who supply our market with fruit, it is not a profession, but a sort of subordinate, incidental business; they think other branches of their pursuits are more important, and the fruits are passed over hurriedly and carelessly, the object being to get rid of them with the least possible waste of time. Fruit for market should be always assorted into grades, and never mixed and put into bags. In gathering summer apples and pears for market, the barrel or basket in which they are to be carried to market should be taken to the tree, the fruit hand-picked and carefully put into the barrel. Fallen and bruised ones should be put into a separate cask. Fall and winter fruit, as a general thing, should be gathered about the tenth of October. Barrels should be provided, and taken to the trees; also good step-ladders. Pick into small baskets, and fill the barrels, every sort by itself, keeping out the small ones, as they would materially injure the sale of the others. Head up the barrels and mark the sorts; carry them to a barn or shed till frost sets in, then put them into a dry, cool cellar, selling all fall fruit in proper time. Every one should ascertain the keeping qualities of his sorts, and never dispose of keeping fruit in the fall, for one barrel of apples in May, is worth two in November. In these brief remarks, I have alluded more especially to the staple fruit of

the country. A great deal more might be said on the gathering, preserving, and marketing of fruit, but I fear that I have already trespassed on your time for discussion on the different points alluded to.

After the reading of Mr. Leslie's paper, some conversation took place among the members of the Club, upon the subject of fruit culture.

Mr. Leslie in reply to questions, said that he considered the estimates as to productiveness stated in his paper very low. He had known thirty-two barrels of apples to be gathered from three trees in a single year. Such productiveness, however, would not take place two successive years. Trees in Canada would not fail to produce on an average two barrels each. He thought trees in an orchard should not stand more than twenty-five feet apart. When close together they afford mutual protection, and thrived better than under other circumstances.

The Chairman (E. W. Thompson,) asked Mr. Leslie how long he would expect to wait before obtaining a barrel from each tree.

Mr. Leslie said about eight years, although much would depend upon the care bestowed. The produce of the ground in the meantime would repay the labour of cultivation. The best crops are produced from among the trees, and the abstraction from the soil of the nutriment required will not injure the trees. Root crops are to be preferred.

Mr. McDougall said that that there was no doubt as to the question whether the cultivation of fruit should be recommended to the farmers of the country or not. That point has been settled in the affirmative. The expediency of setting out orchards should not be discussed merely on the ground of pecuniary gain. Fruit is generally allowed to be essential to health, and to be the natural food of man, though in these northern latitudes he probably requires animal food also. In another point of view, looking at the matter in its ornamental aspect, what is more pleasant to behold than a flourishing orchard with its luscious fruit? In Canada, great difficulty has been experienced in raising apple-trees. They are a long time in bearing, and then yield but little fruit. This was not altogether owing to neglect in cultivation. He was inclined to believe there was something wrong in the tree itself. It had been stated at more than one meeting of fruit-growers in the eastern States that root grafted trees had proved a failure. He would like to know whether it was the practice among nurserymen here to raise trees in this way. He had been told by a practical man that when a scion is placed in the first or upper section of the root it grows far more vigorously than in the lower part. Does not this show that there is a difference in the organisation of the root itself? If so, it would account for the fact that some flourish while others do not. Trees are frequently purchased of travelling pedlers, from the neighboring States, who come here with the refuse of American nurseries. It would be better to purchase of nurserymen nearer home, on whose representations we can rely, and who have a reputation to maintain. It has been stated by a Mr. Field, before the New York Farmer's Club, that if trees are raised in a pyramidal or conical form and with no more of stem than is necessary, that they will begin to bear in a much shorter time, and yield better fruit. The tree may be shorter lived, but it would pay to follow this method, and set out trees more frequently. With regard to the apple borer, he had lately seen it stated that the insect is attracted to the tree by an odour exhaled from the bark in consequence of its exposure to the sun. If the tree was grown close to the ground the evil would in some degree be obviated.

Mr. Leslie said that apple-trees grafted in the root were, in his opinion sounder trees than when grafted above ground.

Mr. Grey said that he was not in favor of root grafting. One plant out of three might grow strong. He agreed with Mr. McDougall, that the system of growing trees with tall stems was not good. The apple borer might be kept from the trees by throwing a small quantity of lime about them. People do not take sufficient care to obtain the best varieties of trees. He would recommend as the best for this country, the Baldwin apple, the Rhode Island Greening, and some others, the names of which our reporter did not catch.

In reply to a question Mr. Leslie stated that the blight upon plum trees, of which he had made mention in his paper, was not caused by the curculio: it is itself a disease. The curculio merely attacks the fruit. The native plum is not liable to the blight. The common blue plum is most liable to be affected with it.

Mr. McDougall said one way to prevent the ravages of the curculio was to plant the trees near a stream or body of water. The instinct of the curculio will lead it to avoid fruit

that when it drops will fall into the water. Of course this was a remedy that could only be adopted in certain situations. Mr. Dennison and one or two other gentlemen thought that the advantage of this plan consisted in the fact, that the plums as they fall are carried away by the water; if the fallen plums are carefully gathered and destroyed, a good crop may be obtained in the ensuing year. The fine kinds of plums are most likely to be attacked.

Mr. Grey said that in the best nurseries of England plum trees are frequently washed with soapsuds and sulphur, which has the effect of destroying insects of all kinds. He thought that sulphur was not used so much as it ought to be, on all kinds of fruit trees. Plum trees that blossom regularly and bear little or no fruit, may be rendered productive by boring in them a tube two or three inches deep, filling it with sulphur and stopping it up.

Mr. Fleming said the ravages of the curculio could not be so prevented. The insect flies to the tree, and the only way to keep it off would be to fumigate the air. In answer to a question, he said he would cultivate the ground under cherry trees to the highest possible degree. In regard to apple trees, he was not in favour of root grafting; his opinion was of sowing the seed and transplanting into rows, and after the trees have been growing two years then to bud them. When the tree is first taken up the tap root is cut, and at the next transplanting there will be a mass of fibrous roots which will ensure a vigorous growth.

Professor Croft, R. L. Dennison, Mr. Fisher, and other members joined in the conversation, which lasted for some time. A vote of thanks was given to Mr. Leslie for his paper, and it was announced that Mr. Dennison would read a paper at the next meeting, on "The Horse."

Caked Udder—Arnica.—Under this caption in the *Country Gentleman* of the 12th inst., the tincture of arnica was spoken of as having proved highly efficacious in a case of this kind, and doubtless it might prove so often in similar cases, as well as in bruises and injuries unattended with flesh wounds. It may be prepared by digesting for four days, two ounces of the flowers of Leopard's bane (Arnica montana) in a pint of alcohol, and filtering the solution. This preparation has long been in use among German practitioners, for a variety of affections, and is used both eternally and externally; from its efficacy in bruises, &c., it has received the title of *panacea lapsorum*. Preparations under the name of arnica have entered largely into the prescriptions of homœopathic practitioners; but if we are to understand that their practice is restricted to the use of infinitesimal doses, the instance in consideration would seem to have been entirely without any such limits.

Probably most of the liniments in common use for the human species, would prove efficacious if applied to domestic animals. Among these we may mention the compound tincture of soap, (liquid opodeldoc) which may be used in cases where a liniment is required, either alone or combined, when there is much pain, with a third or an equal quantity of tincture of *aconite root*, or with the same quantity of laudanum, or of tincture of arnica. The compound tincture of soap may be also usefully combined with one-fourth the quantity of oil of origanon, or oil of cedar, or with aqua ammonia, and used as a liniment.

These substances can usually be obtained of any apothecary. B. *Providence, R. I.*

Measuring Hay.—The editor of the *New Jersey Farmer* gives his rule, based on a large experience, for measuring hay. He formerly weighed his hay. But repeated trials taught him that this was unnecessary. Take a mow which has lain through the winter, and ascertain its amount in cubic feet, (multiplying its width by its depth, and that product by its length,) and then divide by 700, and the quotient gives the number of tons. The upper third takes 800 feet to the ton; the lower, 600 feet, making the mean 700 feet. If the mow is only five or six feet deep, however, it takes an average of 800 feet to the ton.

Great Britain keeps 35,000,000 sheep on 77,000,0000 acres, and France the same number on 132,000,000. Great Britain slaughters 10,000,000 sheep, averaging 80 pounds of neat meat, yearly, and France only 8,000,000, averaging but 40 pounds. The average return of an English sheep farm is fully six times greater than that of a French one.

CULTIVATION OF POTATOES.

The following paper was read before the York Township Farmer's Club, a few months ago, by Mr. Wm. Lee. It is appropriate to the present season, and we therefore lay it before our readers:—

Mr. President and Gentlemen,—The Potato is yearly increasing in importance to the farmer in this vicinity. The increasing population of our cities, towns and frontier townships, will always demand a large supply of so necessary an article. Let our tables be ever so bountifully supplied with the necessaries and even the luxuries of life, without a dish of these best of all vegetable pills, we should feel a loss which no other vegetable could fully supply.

Though the potato may not have found much favor on its first introduction into England by Sir Walter Raleigh, yet it has now become an almost indispensable article of food, and is said to be one of the most precious gifts of the new world to the old. It is very extensively cultivated, and was considered peculiarly free and safe from those dangers and accidents which other crops were subject to. It has now however become one of the most precarious and uncertain products, since that dire disease, the potato rot, has yearly destroyed such a breadth of crop; so much so, that at certain times potatoes were not to be got, even in this new and bountiful country, for either love or money. So much have they become a part of the food of the people, that their consumption would go on in spite of the price if they were to be had. It becomes our duty and our interest to try every means within our reach, to restore this valuable plant to its original healthy condition. Many have been the causes assigned for this failure in the potato crop, and many have been the suggestions for a remedy, both by science, and also by practice. But as yet neither the cause of the disease nor the remedy, has been found out. However, let us not despair. Perseverance overcomes most difficulties. This is an age of progress; many wonderful things in science and the arts, have been found out; and why not in the science of Agriculture. Some of the first minds in the world are engaged in it, and are bringing science to their aid. Let us be patient and persevere, in well doing, and there is not the least doubt, but by careful management, by selecting the best seed, preparing the ground in the best possible manner, according to the best of our knowledge; that we shall succeed in making potato growing a fair remunerating branch of our business.

Now, sir, I will explain to you my practice in growing potatoes. It is always in our discussions, best to give our own experience, what we know from our own practice to be facts. These are worth more to us, than whole volumes of opinions, or theories, from others.

First, then, the preparing of the land. An old grass field is best—neither too wet nor too dry—a good deep, strong furrow should be ploughed—if clayey, in the fall, so that the frosts of winter may assist in mellowing and making the land fine. If the land is light or sandy loam, the spring ploughing is the best. As soon as the ground is in order in the spring, harrow well, and then sow with oats or peas, and harrow again, crosswise, several times. There is no danger of over-doing it, if the ground is dry. A top dressing of plaster will always do good. After the crop comes off a good coating of barnyard manure should be applied—from 15 to 20 tons to the acre, spread evenly over the surface, and ploughed in as deep as possible, so as to effectually cover the manure as fast as it is applied. The ground thus prepared is left in its rough state until the following spring, and then as soon as it is sufficiently dry to work it is well harrowed, and left a few days. It is then crop ploughed, or worked with the cultivator until the earth is finely pulverized.

The Planting and Working.—The drills are now drawn out with a single furrow thirty inches deep; the seed is dropped in the furrow, from eight to ten inches apart. If the field is clear from weed seeds, a brush made of small bushes is drawn crosswise of the drills. This process covers the seed sufficiently, and the field is left until the potatoes are up two or three inches, when the drill hoe is run between the rows, and the weeds between the plants are taken out by hand. After remaining a week they are molded with a double moldboard plough. This should be done immediately after a shower of rain, and the potatoes will not suffer so much from dry weather, as they will soon cover the earth and prevent the evaporation which the sun would otherwise produce. In a few days they are gone through again with a hand hoe to take out any remaining weeds that may

have escaped the first hoeing. They are then left to grow, and will soon cover the gronnd so as to effectually smother any weed that may show its head. If the ground is likely to be very weedy it is better to cover the seed with a plough, throwing only one furrow on each drill, and then harrowing down lengthwise with a bush just as the potatoes begin to appear above the earth.

Last spring I planted about two acres with Anderson's Potato Planter, but the machine was so badly made that I was obliged to stop and plant the remainder by hand. However I believe that a good potato planter would be a great benefit; the piece planted with the planter got the start of that planted by hand, and continued about a week a-head, although only planted one day before, and at the digging turned out the best crop. The cause I assign for the Planter's superiority is its making the drill, dropping in the seed, and covering it immediately, before the sun has time to dry the earth, which was not the case with those dropped by hand, which had necessarily to remain open some hours exposed to a very hot sun, which dried the earth so much that it must have been some time before a sufficiency of moisture would be generated to act on the seed sufficiently to cause it to grow.

Sorting and Preparing the Seed.—Two sorts of seed is used, small potatoes and cut seed from large ones. The small potatoes are sorted from those grown from the cut seed from one inch to one and a half inches in diameter—not smaller—these are planted whole and no seed is saved from them. The cut seed is sorted from the best large potatoes, the best shaped and the healthiest in appearance, cut into good large sized sets, two or three weeks before planting, thrown into a heap on the floor of an outhouse, turned over two or three times, and a little plaster thrown over them each time they are turned. This turning dries them equally, and they form a skin on the cut portion of the set, which is a protection to them when planted. By these means the seed is kept pure from mixture with other kinds. By selecting the best, and largest each year to procure seed from, the potatoes do not degenerate; neither do they require changing so often, that is, fetching from a distance, for a change of soil and climate. I have a kind of potatoes (Shaw's seedlings) in my possession, which I have grown ten years on the same farm, and instead of degenerating, they have rather improved. They are a summer and fall potato, and crop exceedingly well; they are an excellent potato in their season, but not good for eating in winter and spring.

Digging, Storing and Keeping.—Potatoes should, if possible, be dug in dry weather, and allowed to lie on the earth, some time to dry, then gathered carefully, and carried in barrels in a waggon. If they are not perfectly dry they should be taken to a building where they can be spread on the floor until they are thoroughly dried. Then a pit may be prepared in the following manner. Choose a dry, sandy knoll, if possible, and dig a trench eighteen inches deep by three feet wide, and as long as required, throwing the soil out in equal parts on each side, then line the bottom with boards, and lay the potatoes in the trench, heaping them up in the centre until about the form of the roof of a house. When you have them thus prepared, take straw and lay it on the top in the same manner as if you were going to thatch, to about the thickness of six inches when pressed close. They should be covered very lightly with earth on each side, and left open along the ridge, and a board laid on to keep out the rain: when hard frost sets in earth up all over, eighteen inches thick, and cover over the earth one foot thick with straw, weeds or short litter of any kind, which will keep the snow from blowing off, and effectually keep out the hardest frost. I have never yet lost any potatoes when pitted in this manner more than what will ordinarily rot by keeping; they always turn out in the spring in beautiful condition, and as fresh and good as when put in. Potatoes for eating keep better stored in this manner than stored in a cellar. The light and air cause them to have a bitter taste, and if they are warm to grow.

If a sandy knoll cannot be got to make a trench on, mix some lime and sawdust, or ashes and sawdust together, and spread amongst the potatoes as they are being put into the pit. This will absorb the moisture and assist in keeping them dry, which is indispensable to their keeping in good condition.

Some members of the Club having expressed a wish that I should give my opinion with regard to the potato disease: I proceed to do so, not that I expect to throw much light on the subject. I will, however, state a few facts that have come under my observation. My own potato crops, the last few years, have been generally free from the rot, with some exceptions; my land that was planted is flat, with a clay subsoil, consequently the water lies on it late in the spring; some seasons the crop could not be got in until

June, and some patches not until the middle of June. In digging the potatoes, I have invariably found that when there was any disease, it has always been on the lowest and wettest places. On the dry parts of the field, there never has been the least sign of the rot that I am aware of. Last spring I planted one and a half acres with large potatoes to raise seed from. The land was very wet and low, a black sandy loam with a quick-sand subsoil. This piece was planted about the middle of June, and came up quick and grew very luxuriantly, promising a heavy crop. It was rather late in the fall when they were taken up. There was a heavy crop, but so diseased that they were scarcely worth digging. I had no loss in any other field, though I had upwards of 18 acres besides. I have observed that if the potatoes are not got out of ground before the heavy fall rains, they are almost sure to be more or less diseased. The excess of moisture in the earth seems to have a very bad effect.

From the above observations, I infer that the cause of the disease, to some extent, at least, is a superabundance of top water, and a cold, hard subsoil underneath, and I strongly recommend as, at least, a partial remedy, thorough under-draining, and subsoil ploughing. The drains should be laid in deep, with good pipe draining tile, each drain left open at each end to allow a free circulation of air through the drains, and consequently through the soil. The sub-soiling should be deep and well done. This would take off the top water, and permit much earlier planting. The circulation of air through the drains and soil would keep the ground moist, and prevent injuries to the crop from long continued droughts. The sub-soiling would loosen the earth to a sufficient depth for the roots to strike down, and obtain moisture and food from below. The thorough draining and sub-soiling will prevent the early frosts, in a great measure, which are so injurious to the crops that ripen late in the fall. If the above plan of cultivation of the potato is strictly followed, and the seed selected, and prepared as directed, we shall have much less cause to fear ths potato disease, than many of us have under our present method of cultivation.

I now leave the subject with you, trusting that what I have said may cause some of you to think seriously on the suggestions which, with due deference to the opinions and experience of my brother members, and with but little time for the preparation, I have ventured to submit to you.

Aid to Agriculture in Illinois.—The Illinois Legislature has authorized the publication of 8,000 copies of the 2d volume of Transactions of the State Agricultural Society, and it is designed that the work shall be published and distributed so that the County Societies can have their copies to serve as premiums at their exhibitions next fall. The Legislature has also made an approbation to the State Agricultural Society of $3,000 a year for two years. All which is commendable, and evinces that the Legislature of Prairiedom may be truly denominated "the assembled *wisdom* of the State."

Remarkable Horse.—There is at the present time to be seen working at Sandbeck, on the estate of the late Earl of Scarborough, a horse of the name of Shasper, who has, during a period of twenty years, travelled the enormous distance of 140,000 miles, or above the distance of four times round the globe. The *Doncaster Gazette* says: "This remarkable animal has, during that time, been solely driven by James Forshew, who has been a servant on the estate for upwards of twenty years, and never lost a single day. Since the demise of the late Earl, these two faithful servants have been separated—Forshew having been discharged. This old and valuable servant was much grieved in parting with his companion in labour."

Oil of Mustard in Rheumatism.—When one-third of the male population complain, to some extent, of rheumatic pains, in the fickle climate of New England, but more especially along the sea shores, physicians have it in their power to mitigate an immense amount of severe suffering by prescribing the volatile oil of mustard. It is employed as rubefacient, being first diluted in its own weight of alcohol at forty degrees. Some patients may object to its pungent odor; but that is temporary, while the remedy may in some cases prove a permanent cure. Make the application at least twice a day, and protect the part with soft flannel. Mustard mills are in operation in the cities generally, at which the oil may be procured, it being an article not much in demand in the arts.—Were it not for detecting it by a pungent odor, this oil would have become a secret remedy for rheumatic pains years ago. A nostrum loses miraculous efficiency and curative powers on becoming known.—*Medical World.*

FOOT ROT IN HORSES.—A POPULAR MEDICAL ERROR.

One of our subscribers wishes to know what is the best treatment for the disease now prevalent among some of our city horses, called the foot-rot, we would inform him that it must be treated according to the indications; at times local treatment alone may perfect a cure; at others constitutional remedies are needed in order to counteract the prostrating effects which long continued pain has on the system, or to improve the morbid condition of the body, and prevent gangrene of the parts involved. The disease is probably of lymphatic origin, occurring in the deep-seated lymphatics of the foot, and generally occurs among horses of coarse breed and flabby organisation. It generally commences at the anterior part of the *hind* feet, or on the inside of the same just above the hoof. We shall try to prepare an article on the subject for our next number. In the meantime we recommend our friend to try as local agents, astringents and antiseptics. Diluted pyroligneous acid is good, so also is chloride of zinc. In the putrescent stage, use chloride of lime, or finely-pulverized charcoal.

Popular error in regard to "*proud flesh.*" Some horse owners have a sort of hereditary prejudice in favour of the popular theory: "that proud flesh must be got rid of at all hazards," and often a poor horse having a wound or abraded spot, presenting a healthy granulating surface, has to submit to the application of Dr. Neverthink's remedy, which consists of nitrate of silver, or caustic potassæ. How the caustic action of either of these remedies can be confined to the luxuriant growth, and not effect the contiguous healthy granules, the *wise* men have not informed us. We clip the following from an article on "Popular Medical Errors," published in the *Medical World.*

Proud Flesh.—Patients will frequently come to us to know if there is any proud flesh in their wounds. The fear of proud flesh is very general, and brings many patients to the doctor whom he would otherwise never see. When a wound is attended with loss of substance, it is gradually filled up by the growth of the surrounding parts—a process which is called granulation, from the grain-like surface it presents. The granulations sometimes rise above the level of the surface, and I suppose the term "proud flesh" was given to this appearance as a figurative term for a luxuriant or forward growth. There is really nothing bad or malignant, as it is called, in the elevation, but it is rather indicative of complete and rapid repair. There are, it is true, complaints which are attended with what are named malignant or fungous growths; but they are happily very rare, and quite unconnected with the healing of common sores. I shall not dwell, however, upon the latter, as it would carry me on to the description of a disease which is out of my present province. It is, perhaps, after all, almost a pity to disabuse the public mind of the idea of proud flesh, for it is friendly to the doctors, and may tend to induce the people to have their sores better looked after.—*Am. Vet. Journal.*

Farmers Clubs.—In some of the villages of this region agricultural clubs exist. These should be greatly multiplied. We have before us the plan of operations pursued by one club and give it as a basis for the constitution of others. The members of the club meet at each other's houses, on an established day of each month, at 3 o'clock in the afternoon in the alphabetical order of their names. A foreman or president is selected, and, under his lead, they sally out to make an inspection of the system of culture pursued by the host of the occasion. They examine his fences, stock, farming implements, garden, buildings, and, indeed, every department of the farm, critising everything freely, and finding all the fault possible. They then return to the house, read the minutes of the last meeting, propose, discuss and decide upon questions, the decisions all being recorded. All conversation except upon agricultural subjects is out of order. A substantial, plain supper follows. A register of crops, with the number of acres upon which they are grown, is kept by each member, and handed in yearly to the secretary, who arranges all in a table, for inspection and reference. What farmer cannot see that a club conducted like this must be attended with the best results in a social as well as professional way?—*Springfield, (Mass.) Repub.*

Patent Office.—The receipts of the United States Patent Office for 1856 were $192,588, and the expenditures $199,931, being an excess of expenditures of $7,343 over receipts, caused principally by an act of Congress ordering extra compensation to Examiners. The number of applications for patents during the year was 5,960, and the patents granted 2,502, being 525 more applications and 478 more patents than any previous year. —The Commissioners recommend an increase in the patent fees.

THE TWIN QUESTION.

Sidney, April 20th, 1857.

Sir,—In the March No. of the *Agriculturist* I saw a letter from S. B. S. concerning Twin Colts, and also a letter from Francis Colman, stating that females of the horse kind do make good breeders, but as for the cow kind, he never knew a twin heifer to breed. Now, as to the latter, I can say with certainty, that I raised two twin heifers; one of them is still living, and will have, in a few days, the fourth calf; the other had two, and is now dead. If you think these facts worthy a place in the *Agriculturist*, please insert them.

Yours, &c., John Gilbert.

Remarks.—The question is not whether heifer twins will breed, but whether a heifer twin, of *bull* and heifer, will ever do so. The former is not disputed, the latter is. Though in the latter case, the female exhibits no marks of a hybrid or mule, she is called a *free martin*, and never produces young. So say the authorities. The doubt with S. B. S. was whether the same result happens in the case of twin colts, being male and female. That question does not appear to have been yet answered satisfactorily.

The Tansy, and its Value.—M. De Morogues announces that this plant—dried—is excellent sheep food, and that, when fresh, it makes capital litter for domestic animals. Its peculiar balsamic odor most effectually drives away fleas. A lapdog sleeping on a bed of fresh tansy, is immediately freed from these vermin. It should be renewed when the leaves are quite dry. This seems a better application of the plant than following the example of our grandmothers and making it into cakes.

How to do up Shirt Bosoms.—We have often been requested by lady correspondence to state by what proçess the gloss on new linens, shirt bosoms, &c., is produced, and in order to gratify them, we subjoin the following receipt:—"Take two ounces of fine white gum arabic powder, put it in a pitcher, and pour on a pint or more of boiling water, according to the degree of strength you desire; and then having covered it, let it stand all night; in the morning pour it carefully from the dregs into a clean botle, cork it; and keep it for use. A tablespoonful of gum water stirred in a pint of starch, made in the usual manner, would give to lawn, either white or printed, a look of newness, when nothing else can restore them after they have been washed.

Safety Friction Matches.—A recent English invention consists of matches made of sulphur and nitre only, without phosphorous, while the phosphorus, is applied to the sand-paper, with which the matches are ignited. To us, this seems only to transfer the danger of ignition from the match to the sand-paper. But if this is kept in a safe place, or if it be carefully fastened on the wall, near the place where the matches are to be used it may be a valuable improvement. It is a good fashion, in regard both to convenience and safety, always to hang up pieces of sand- paper, ornamentally bound and otherwise made tasteful in appearance, as we do a watch-case, by the side of our beds or bureaus, by the aid of which a match may be ignited without trouble. One will last, if properly secured, for a long while.—*Plough, Loom and Anvil.*

Cheap Paint.—If any of your readers wish to use a very cheap and substantial paint, of a drab color without lustre, let them mix water lime with skimmed milk, to a proper thickness to apply with a brush, and it is ready to use. It is too cheap almost to estimate, and any one can put it on who can use a paint brush. It will adhere well to wood, whether smooth or rough—to brick, stone or mortar, where oil paint has not been used, in which case it will cleave to some extent, and form a very hard substance, as durable as the best oil paint. J. M. Clark. *Throopsville.*

LIME—GYPSUM.

To the Editor of the Agriculturist.

Mr. Editor,—I should like to have your opinion on the two following questions:

1st. What is the least, and what the greatest quantity of lime; and whether roche or slack; that may be applied with beneficial effect to land, supposed to be deficient in that necessary aliment of plants and vegetables?

2nd. Whether you think that the pretty generally popular opinion is correct, that gypsum or plaster is an exhauster of the soil? or whether the continued cropping of the land, without rest, rotation of crops, or manures, is not the real exhauster of the soil? May not gypsum or plaster be a stimulant; and under the present system, or rather want of system,—by causing a more abundant yield in the crops, the sooner deprive the soil of those ingredients which are the necessary food of plants, than if plaster had not been used; but which, nevertheless, would sooner or later, be the inevitable result, without rest, rotation and manure,—and so far, and no farther, may be considered an exhauster of the soil?

2nd April, 1857. Yours, &c., PLOUGHMAN.

REMARKS.—Experiment and science both teach that lime is most beneficial when applied to soils rich in vegetable matter in its *caustic* state. When slaked by means of water, it still retains its quick or caustic quality; but when left uncovered in the air, after it has fallen into a powder, it slowly absorbs carbonic acid, and becomes re-converted into dry carbonate of lime. Its chemical action is then the same as chalk or crushed limestone. The use of caustic lime on certain soils has been found beneficial in a high degree. Its *modus operandi*, as laid down by the best authorities, would take more space to describe, than we have now at command. We advise "Ploughman" to procure Johnston's "Elements of Agricultural Chemistry and Geology," where the latest and most reliable information on the subject will be found. The advantages of *mild* lime, or carbonate, are also considerable, and is a good form in which to apply it to soils deficient in lime, and not rich in organic matter.

As to *quantity*, everything depends upon the condition of the soil. Land that is wet, or badly drained, requires a large application, and frequently repeated. Upon a thin soil, less will answer. On pasture lands, small and frequent doses are found most beneficial. In arable culture, larger and less frequent applications are necessary; on light soils it is preferable to apply the lime in the shape of a compost, and in smaller quantity. In England, the quantity applied in *ordinary* cases amounts to from seven to ten bushels a year. We are not aware of any reliable experiments in this country, for the purpose of determining the effect of lime upon our ordinary soils, or the quantity per acre that ought to be used. This is one of the points which the Board of Agriculture ought to ascertain by careful experiments.

The exhausting effects of lime, as well as gypsum (or plaster), depend evidently upon the same principle. Professor Johnston puts the question in a common-sense view as follows—"It is conceded that the crops we grow rob the soil both of organic and inorganic matter. A double crop will take twice as much, a triple crop three

times as much, and so on. And the more we take out in one year, the more rapidly will the land be exhausted. Now, if lime (or gypsum) by its mode of action enables us in the same time to extract three or four times as much matter from the soil, in the form of increased crops, it must so much the more rapidly exhaust the soil, in the same way as we should drain a well sooner by taking out 50 than by removing only 5 gallons a day." We must restore in the shape of manure what the crops carry off, if we would keep up the fertility of the soil. The old rhyme assures us that

"Lime and lime, *without manure*,
Will make both land and farmer poor."

HOW TO COOK SALSIFY OR VEGETABLE OYSTER—COFFEE MAKING.

To the Editor of the Agriculturist.

Through the winter and spring, Salsify is a favorite dish on our table. We usually prepare it by boiling in milk until the slices are tender, adding pepper and salt, and a good slice of butter. When reado to serve, stir in two or three well beaten eggs, taking care not to let it boil afterwards. This is very nice poured over slices of toast.

Another way I have learned by a few trials which husband pronounces decidedly good. Boil until tender a pint or more of salsify, mash fine, then add pepper, salt, butter, a few spoonfuls of milk or cream, a little flour, and two beaten eggs. Make into small cakes, and dip in flour or egg batter, and fry of a light brown. Perhaps some of your country friends who, like us, live far from market, will pronounce this a good substitute for fried oysters.

Would a few simple rules on "Coffee making," be out of place in your columns? Experience has taught me that it is *not* "the easiest thing in the world to make a good cup of coffee," but, on the contrary, a very easy thing to fail. I know that in my early housekeeping days, *my* coffee was often poor; why, I could not tell. If the few hints that experience has taught me, will save *one* young housekeeper the mortification I have felt, I shall be amply repaid.

First then, wash quickly through two or three waters as much coffee as you want to roast, then carefully look it over, taking out impurities and every unsound kernel. Put it into a dripping-pan, and place in the oven, with the doors open until the coffee is dry; then with a lively fire and frequent stirring, let it remain until the kernels are a light brown all through. Then pour into a close vessel and cover tightly. When wanted for use, take a table-spoonful or more for each person, grind rather fine, and stir into it sufficient cold water to wet every particle. Before adding to your coffee boiler, look to it that the vessel is perfectly clean. It is not enough that it has been rinsed out,—it must be thoroughly washed out with a cloth. You will, perhaps laugh, but I have seen many an otherwise good cup of coffee made bitter and black from not obeying this simple direction. Pour to the coffee as much boiling water as you require, and let it once boil up, when it will be ready for the table. Let your cup be warm if the weather is cold, and your cream too, and my word for it, every time you fill your husband's cup, you will say (to yourself I mean,) "how beautifully yellow it does look."

EDITH.

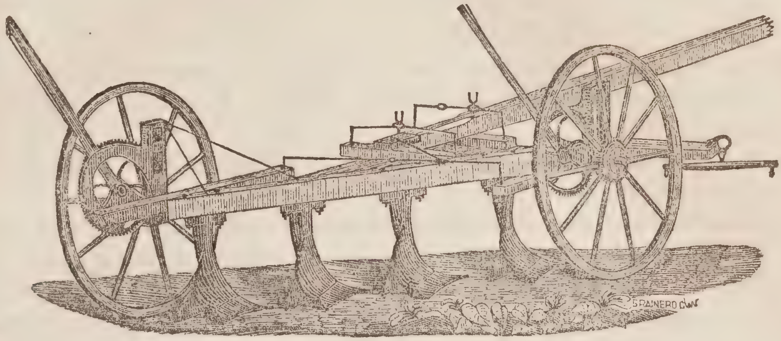
THE CURRANT.

There are no more desirable accessories to the garden than our small fruits, whether cultivated for profit or family use. We have before had something to say on the subject, and recur to it again, not alone for the benefit of our numerous new subscribers, but because Horticultural knowledge, like other kinds of knowledge, is necessarily conveyed by "line upon line, precept upon precept." We shall confine the present article to the Currant. Some may think it needless to give directions for cultivating the currant, since almost everybody who has a garden grows it. But we think not. To *grow* a plant involves the idea of cultivation and care; at least, it includes something more than sticking a plant in a hole, and gathering the fruit in the course of time. If this be true, then probably not more than one in a hundred *grows* the currant; it grows itself, and no thanks to anybody. We know of no plant more neglected than this, and we know of none that yields a more generous return for proper care. No fact in Horticultural science is better established, than that high culture is a wise economy. This remark will apply to the currant with peculiar force. It is true, so generous is its nature, it will from year to year produce a moderate crop under very bad treatment; but when judiciously cultivated, the product is wonderfully argumented in quantity, quality and size. In addition to this latter fact, a healthy, well-grown, symmetrical plant, gladsome with its peculiar treasure always produces an emotion of pleasure in the beholder; a matter of no small moment to those who would extract pleasure even from the sweat of our brow. If, then, additional profit, as well as no small degree of pleasure, will result from the application of skill and care to the treatment of the currant, let it by all means be done. Let it no longer be thrust into a corner, or some other out-of-the-way place, but bring it out into the open air and genial sunshine, and minister properly to its wants. It is almost useless to attmept to bring into shape, vigor and productiveness, old, unsighly, and half-decayed plants. It is better to begin anew. We do not like plants grown from suckers. Procure those grown from cuttings, and remove all the eyes and shoots so as to produce a clean stalk a foot or more high, above which the head should be formed. This stalk must always be kept free from shoots.

Let the ground be trenched a couple of feet deep, and incorporate with it an abundant supply of well-rotted manure. In planting, remove enough earth to spread the roots out in their natural position, cutting off all that are bruised; and be careful not to plant too deep. Tie the plant to a small stake till it becomes established; thin out the shoots so that a round, open head will be formed; shorten in all the remaining shoots about two-thirds of their length, and the work of planting will be complete. The subsequent treatment will only become difficult through neglect. An annual pruning is indispensable, which may be done during the winter, or very early in the spring, and which consists mainly in shortening-in the last season's growth, leaving about six inches of new wood, and cutting out entirely all branches that cross or interlace each other, so as to keep the head well open and in good shape. Suckers must be eradicated as soon as they make their appearance. Fork in some good old manure in the spring, and keep the ground mellow and free from weeds. If the soil is stiff, the manure may be applied in the fall, and forked in in the spring. If you have done the work thoroughly and skillfully, you may look confidently for an abundant reward.

This article would be incomplete without a list of desirable kinds. The *Red* and *White Dutch* are, on the whole, about the best, and are recommended for the general crop. The *Cherry* is a large and splendid variety, but not very productive. The *White Grape* is also large and handsome. Large *White Provence* is a very large and handsome new variety. May's *Victoria* is late, and a good bearer, with long bunches of fruit. *Prince Albert* is a fine late red variety. *Black Naples* and *Bang Up* are the best black varieties, and are good for jellies. *Knight's Sweet Red* we grew four years before we discovered that the "sweet" was produced by the liberal addition of sugar. The *Mong-bunched Red* is a desirable variety. The list might be extended, but we think the above more than enough; they are the best, so far as our experience goes. We repeat, however, that the Red and White Dutch will give most satisfaction for a general crop.

Preserving Eggs.—I am convinced from numerous experiments, that eggs may be better preserved in corn meal or bran than in anything else. Mrs. ———, the lady knitting in the other corner there, last fall put down some twenty dozen, small end down, and only two came out worse for resting. To this present sitting, some four months, they are "good as new." Salt does not do as well. J. E. S. *Barre, Mass.*



KELLAM' S GANG PLOUGH.

The above is a Canadian invention, and on the authority of gentlemen well qualified to judge of its merits, we are able to speak very favourably of its performance. The improvement or " patent," we believe, consists in an adjustable arrangement of the wheels, by which the implement can be more easily turned at the end of the field. David Christie, M.P.P., is now using this implement on his extensive farm, and pronounces it superior to all others. He has tried all the kinds in common use. We have not seen, or used the implement, and can, therefore, only speak upon the authority of others. As the patentee does not advertise his terms in the *Agriculturist*, we cannot state the price &c. We believe it can be had at nearly the same price as other wheel-ploughs. The following is the patentee's description of its peculiarities :—

On the above plan any number of Ploughs required in a gang, can be managed with the utmost ease. The Plough is strong and not liable to get out of repair. The pole can be arranged for two or three horses abreast, as circumstances may require. Six or seven acres is a common day's work. The ploughs are balanced between the wheels, which gives a uniform depth to the furrow on the most uneven ground.

The pole has a horizontal motion, with which the wheels are so connected, that when you wish to turn, the wheel on the outside of the circle adjusts itself perpendicularly to the beam ; the other, at the same time, forming a pivot on which the ploughs may turn.

The wheels can be raised so as to give the ploughs any required depth ; or lowered, so that it can be driven any where on the farm. It does not require holding, the wheels keeping the plough steady in the roughest ground.

The draught comes wholly on the beam ; consequently there is but little strain on the pole, and it never galls the neck of a team.

With the above plough a person who can guide a team can do three times the amount of labour, and can do it better than can possibly be done with a single plough.

There is a good deal of enquiry for implements of this kind in the better cultivated townships, and we have no doubt if the above shall prove as good as represented, it will come into general use. We may mention that the patentees reside at Waterford, C. W.

ON THE CHOICE OF STALLIONS.

To the Editor of the Agriculturist

Sir,—As the time is approaching when the choice of stallions must necessarily call for some attention from the farmers of Canada, perhaps a few hints may not now be out of place.

Whether the breeding and raising of horses will continue to be as profitable as it has formerly been, remains to be seen.

When beef and pork were under 20s. per 100lbs, cows from 8 to 12 dollars, Oxen 40 or 50 dollars a yoke, sheep a dollar each, oats less than a shilling a bushel, and other kinds of grain low in proportion, and no cash at even those low prices, nothing was more profitable than rearing young horses. I write from experience, I have found a good young horse worth more to me than a good crop of wheat. Things however are changed, and now when beef and pork are from 7 to 10 dollars per 100 lbs, cows from 25 to 50 dollars each, oxen from 120 to 160 dollars a yoke, sheep 5 or 6 dollars each, oats 2s. 6d. to 3s. per bushel, and other grain high in proportion, and all commanding cash, it is for the farmer to consider, whether the rearing of horses (even at their present high price) is as profitable as other stock.

One thing however is evident, and that is this,—it will never pay to raise poor horses, and for that reason breeders of horses ought to be more careful in the choice of stallions than they have generally been heretofore.

In this section of the country the worst stallions have generally most to do, merely because they are the cheapest, and those stallions that are calculated to improve the stock, have but little to do, unless they travel over a great extent of country; that the same penny wise and pound foolish system prevails in many parts of Canada is evident, from the number of miserable stallions we find all over the country, many of them having nothing to recommend them but the volubility of the groom, and it is certainly surprising how they sometimes impose upon the farmers, if their horse is spavined (for many of them are) the groom has some other name for it, a kick or something else. If he is blind, it has either been by some inflamation when a colt, or he has drawn himself blind, if he is low in flesh, it is on account of his great ambition and his having so much to do, in fact the groom will give a reason for every defect and actually gets some farmers to believe that those very defects show that *theirs* is a great horse. If they happen to get a farmer to patronize them who is considered a judge, it has a wonderful effect, and they often give such farmers the service of their horse gratis for the purpose of gulling others; one thing however is remarkable and that is this,—that these grooms seldom run down horses equally worthless as their own, but if there is a horse in their district calculated to improve the breed of horses, at all events if there is one that has been engaged by some Agricultural Society, that horse, and that horse alone, comes in for all their abuse, and it is surprising how much they are listened to. The time has now come when farmers must shun such miserable horses, and if that is only done, we will soon see their places filled up by a better class.

I do not intend to say anything about the different breed of horses which we have

now in the Province. We have all kinds, and all have their admirers, but in the choice of stallions let those be chosen which are the best of their kind. A dollar or two extra for a horse will put pounds in the pocket when the colt comes to maturity.

I remain sir,

yours, &c.

Perry, 6th April, 1857. A BREEDER OF HORSES.

CHARCOAL AS A PREVENTIVE OF RUST.

To the Editor of the Agriculturist.

SIR,—In one of your early numbers of last year, (upon which, however, I cannot just lay my hand) you gave an outline of a Lecture delivered before an agricultural audience, in which it was suggested by the lecturer that charcoal, finely pulverized, might be used with success in preventing the ill effects of rust or mildew on wheat. But neither the time of sowing, the quantity, nor the *modus operandi* were so clearly stated, as to enable an uninitiated person to try an experiment, with any reasonable probability of a satisfactory result. Now if you, sir, happen to know anything about these matters, and would kindly explain them in your next number, you would very much oblige one of your subscribers at least; who would like to ascertain by experiment, how far pulverized charcoal may be a preventive of mildew or rust in wheat and barley sown on land which from the lowness of its situation is much subject to one or other of them.

I am, &c.,

2nd April, 1857. A. B. C.

BRIEF HISTORY OF CHINA.—China is the most populous and ancient empire in the world; it is 1,300 miles long, and 1,030 wide. Population from 300,000,000, to 360,000,000. The capital is Pekin, with 1,100,000 inhabitants; next Nankin, 1,000,000, and Canton 1,000,000. China produces tea, 50,000,000 pounds of which are annually exported from Canton, the only place which foreigners are allowed to visit. Silk, cotton, rice, gold, silver and all the necessaries of life, are found in China. The arts and manufactures in many branches are in high perfection, but stationary, as improvements are now prohibited. The government is a despotic monarchy. Revenue $200,000,000; army, 800,000 men. The religion is similar to Budhism, the chief god being Foh. The Chinese inculcate the morality of Confucius, their philosopher, who was born 500 B. C. The great wall and canal of China, are among the mightiest works ever achieved by man. The foreign commerce of China amounts to $35,000,000 or $40,000,000 annually, the whole of which is transacted by appointed agents, called "Hong merchants." Foreigners are allowed to live at certain stations, "factories," below Canton. The chief trade is with England. The first American ship reached China in 1784; now the annual average of the United States ships visiting Canton is thirty-two. The revenue derived from foreign commerce by the Emperor varies from $4,000,000 to $6,000,000. According to Mr. Dunn, the opium smuggled into China, to the injury of the people, amounted to $20,000,000 annually, for several years past, much of which was paid in specie, which found its way to London. The Chinese language has nearly 40,000 characters or letters.

To commit a falsehood is like the cut of a sabre; for, though the wound may heal, the scar of it will remain.—*Sadi.*

There is a small chance of truth at the goal, where there is not childlike humility, at the starting-post.—*Coleridge.*

THE ONION—ALLIUM CEPA.

Why is it that the large markets of Upper Canada, Toronto, Hamilton, &c., are supplied with this useful vegetable from the United States? Surely onions can be grown as well, as cheaply, and as profitably on Canadian soil as elsewhere? We were surprised to see a dealer in our markets last fall from Rochester with immense quantities of onions, and to hear him say that he realized a ready sale and a handsome profit. It seems unaccountable that with all the gardeners, and small, as well as large farmers, in the vicinity of this city, we must go to a foreign country to purchase our onions. With a view to amend this state of things, let us attend to their cultivation in future. No crop pays a more steady and uniform profit than this. The market is never glutted, and as a good quality of the article keeps well, it always brings a remunerative price.

VARIETIES.

Though these are quite numerous, the sorts cultivated are principally the *Large Red or Wethersfield, White Silver skinned, Yellow Dutch* sometimes called *Strasburg or Flanders Portugal or Madeira, Large Spanish, Potato or Under-ground Onion, and the Welsh or Tree Onion.* The first two are more generally raised than others, they being the best known and commanding the best price. The white Portugal grows to a large size, frequently reaching five, six, and sometimes eight inches in diameter, but does not yield so many bushels to the acre, and does not keep as well. For general purposes and for export, the red is the best variety to cultivate. For home use, and the supply of the city and village markets, the silver skin and the yellow are the best varieties. They usually bring a higher price.

PREPARATION OF SOIL.

No crop pays better for a thorough preparation, and for high manuring. As a large part of the expense is for weeding and tending, it should be the aim of the cultivator to get a maximum crop from every acre that he devotes to this purpose. The wants of the plants are a fine deep light soil, through which the roots may easily penetrate. Accordingly, when a piece of ground has once been broken up, and cleared of stones and roots for this crop, it is common to keep it in onions for a long series of years. Ten and fifteen years are common terms, and we are told that fields in Wethersfield have been cropped with onions for half a century.

Of course such constant cropping demands large supplies of manures, and where the aim is to raise six or eight hundred bushels to the acre, it will pay better than to have a succession of crops, the most of which will not pay a fourth part of the profit of onions. It is the best way to work in the manures in the fall, and to turn them in with the plow twelve inches deep. The quantity of manure to be applied, and the depth of the plowing must depend something upon the previous treatment of the land, and its previous condition. We would increase the depth of the plowing with the quantity of manure added. We have not so much faith in the application of special manures to this crop as some have There is no difficulty in getting excellent crops with stable manure, and that of the pig stye, and such composts as you are to make upon your own premises. Any man who makes his own manures, is safe in plowing in thirty or forty cords of stable manure or compost, in the Fall, for every acre. In the Spring we would cross plow, not quite so deep, and harrow, so as to make the tilth as fine as possible. Now, the whole ground is to be raked over with garden rakes, and cleared of all small stones and clods. If top-dressings of ashes are used, we would put them on previous to harrowing.

SOWING THE SEED.

The old process of sowing by hand will not pay. The work is better done with a brush seed-sower, if you plant in drills, or with an onion planter, if you plant in hills. Where this crop is much cultivated, the have a machine for the purpose, which drops the seed with perfect uniformity, two rows of hills at the time, covering and rolling at the same time. With a brush seed-sower, a man can plant about as rapidly as he can walk. With

this it is easy to drill in with the seed any fine fertilizer like bone dust, ashes, or superphosphate of lime. The latter, *if* you can get a genuine article, will give the young plants a good start.

CULTIVATION.

When the plants begin to show themselves, the push-hoe should be immediately run between the rows, to loosen the surface of the soil, and to cut off the springing weeds. If weeds have been kept under in former years, they will not be very troublesome. If they have been allowed to go to seed, the cultivator has a job before him. A week or ten days after the plants are up, the push-hoe should be run through again, and the rows be thinned and weeded. If you desire large onions, thin out to six or eight inches apart. If you want them smaller, and more of them in bulk, let them grow thicker. The usual number of hoeings in the season is four, but we think six would pay better than any less number.

KIND OF LABOUR EMPLOYED.

A saving is frequently made in the expense of cultivation, by securing the labour of boys or women in weeding. The work does not require great strength or skill, and a smart lad a dozen years old or more, will accomplish nearly as much as a man, at less than half the price.

CULTIVATION WITH OTHER CROPS.

In Rhode Island, a favourite mode of cultivation in the field is to sow onions and carrots in alternate rows. The onions are out of the way by the middle or last of August, when the carrots have the ground. This root, it is well known, makes the most of its growth in the latter part of the season, and is left out with safety until the middle of November. In this way five or six hundred bushels of onions, and as many or more of carrots are frequently grown upon an acre. This is a good method, if we manure high enough to keep the land in good heart.

The mode of culture pursued by market gardeners is somewhat different. With them it is a matter of prime importance to get onions into the market very early, before the harvests of field culture are gathered. They take bulbs or pipes of a previous year's growth, raised for the purpose, and set them out as soon as the ground opens in Spring. These mature very early, and are mostly marketted in June and the fore part of July. They are tied up in small bunches, with the green tops on, and bring two or three times the price of field onions. The ground is then devoted to some other crop, very frequently to late cabbages. The seed for making the pips is sown very thick, so that the bulbs cannot grow too large. Potato and the top onions are also used for this early crop.

But this course can only be pursued by a few near cities and villages. The field culture may be indefinitely extended, and the demand is likely to exceed the supply for generations to come. It is far more profitable than Indian corn, and pays better than any ordinary farm crop. A common yield on land that will grow fifty bushels of corn to the acre is four and five hundred bushels. A large yield is six hundred bushels, on better land. Eight hundred are sometimes grown with high manuring and extra care.

Visit Your Schools.—You could not do a better thing. Your boy has the idea that you care scarcely a fig's value about his progress there; your girl thinks you are too busy about *more important* matters to worry about her recitations. Grammar is dry as dust to her, geography is tedious, arithmetic is a bore, reading is horrid, writing is her especial abomination. If she speaks of either at the table, she is hushed up. You talk of stocks and senatorship, of the war and free trade. The young ones learn to think their studies very small matters in comparison with yours.

But visit your school to-day. Hear a lesson or two recited. Learn from their teachers what their standing is, in what they oftenest fail, and in what they excel. See who sits next to them in the school-room. See how they compare in personal appearance, whether they look happy and at home. If acquainted with their school habits, you cannot but be interested in them, and then you cannot possibly avoid talking of them. Making these matters subjects of home conversation will certainly stimulate them to better efforts—make better scholars of them. By all means, then visit your schools. Go alone, if no one will go with you. You will always be welcomed by the teacher, unless he is a fit one to be turned off.

HOW TO TREAT CATERPILLARS.

The following is from an American journal, called the *Plough, Loom and Anvil,* and as caterpillars have committed extensive depredations upon Canadian orchards, it may be worth while to copy the article for the benefit of our readers:—

"You may keep off the caterpillar, if you will; and it will cost you nothing to do it—nothing but what you will be paid for in dollars and cents as you go along, leaving the pleasure of seeing a clean orchard, and the reputation of being a tidy farmer, to be set down as so much clear profit; and certainly it is not small, if self-respect and the esteem of the neighborhood are worth having. You should keep a clean orchard for your own sake, and for the sake of your neighbors. It will be more for them to keep clear of pests when your orchard is a hot-bed for them.

Perhaps you say, your neighbors propagate the pests, and it is vain for you to attempt to keep your orchard much cleaner than theirs. There is something in this. You cannot drive them. Mankind are a little like the Irishman's pig—"won't be driven." But they are like that nobler animal, the horse, in another respect—"love to be led by the nose;" epecially if they like the man that leads them. Suppose now, that you clean your own orchard, and then say to your neighbors, "Come on, let's have a clean neighborhood of orchards." "Come," is a softer word than "go." More are persuaded by it.

Yes, clear off the caterpillars. The time is from now as long as you live, for the Giver of all good never meant that there should be a rose without a thorn; or good, fair, delicious fruit, without care and labour. If he had made the earth prolific of all good things, with no enemies in the shape of caterpillars, canker-worms, weevils, frost, drought, tempest, something to keep man awake, to burnish up his powers, to scrape off the rust, the human race would have been extinct long ago. In baffling, therefore, with the farmer's enemies, think that you are fulfilling one of Heaven's merciful appointments; and do the work cheerfully, hopefully. You'll conquor, if you *will* to conquor.

We have said the time is while you live. Rather discouraging. Not very. If you do the work well from January to August this year, there will be little to do next year, and less year after next, and so on. But how? is the question. Your agricultural papers will tell you a score of ways, all very good perhaps. The agricultural papers are about as good as they can be, till the readers will let us give them better. Farmers miss it, that they do not let us pour the light of science on them; give them hard words when necessary, pages which it would take them a winter evening to conquor, but which they *could* conquor nevertheless, and become scientific men, but for the ridiculous idea that a farmer cannot learn much. The way would become easy, when once entered, jnst as the caterpillars are more easily kept down the second year than the first, and still more easily the third. But as the farmers will not come to us, we will go to them. Science is bound to bless the farmer. This is its benignant mission.

Science *should* be clothed in her own beautiful garb, and the farmer should learn to look upon her with the same pleasure as upon his own neatly-clad wife and daughter.—but in our practical recipe for expelling caterpillars, we will dress her in a less comely garb—will use no word that would be new to a child; not because this is the best way, but because the farmers, *mistakenly*, as we think, will have it so. Aye! we humor them at their own bidding, but to their own hurt. They are a little like spoilt children in this respect. The naughty schoolboy says, 'It will do me no good to learn English grammar; what's the use of algebra for me? I care nothing about geography; I'm to be nothing but a farmer, or a mechanic.' So, too, many farmers refuse to learn a few scientific terms, which would be the key to a flood of light on their business, and do more than a little to raise their calling and themselves to a high pinnacle of glory in the eyes of mankind. But let that go.

There are two batches of caterpillars that infest apple and other trees, which have a bitterish and tonic bark aud leaf. The apple and the choke cherry, and the common black, or rum cherry, seem to be their favourites. Hence, if the farmer would keep his orchard clear of these pests, he must either cut down the wild cherries and cast them into the fire, or must consent to watch them with the same vigilance as his apple trees. If cherry trees are tall, it is more difficult even to keep them clean. We once had a large orchard with a single black cherry tree in it, tall, straight and beautiful, productive of abundant fruit, a feeding place for flights of birds, which we loved to see gathered there for their lood. The tree had grown up spontaneously, and we could not but feel that

God had given its fruit for the birds, and as they were willing to take the fruit in its simple God-given state, without adding fire-water, we suspected our right to cut it down. But tall ladders, long poles, and much climbing, were all in vain. It was next to impossible to keep that orchard clean. In spite of all vigilance, the caterpillars bred in the cherry-top, made it look like a scarecrow, and came down in swarms upon the apple trees. It was more laborr to keep a dozen trees in its vicinity clean, than all the rest of the orchard. We spared the cherry tree, nevertheless, and the caterpillars and birds, under a less vigilant owner, divide its leaves and fruit to this day.

The batch of caterpillars which comes out in April or May, according to the latitude and season, seems to prefer the apple leaf to the cherry, and will do considerable mischief, though not very great, if let alone. Larger broods come off in June or July, and do their mischief in July or August. These seem to have a stronger liking for the black, or the choke cherry, but will do great mischief to the apple tree, if not headed off, or fought down. The eggs from which the apple tree caterpillars are produced, are deposited on a small twig, in August or September, in a ring extending quite round the shoot, but a little protuberant on one side. Each egg is deposited in a separate cell, like the cells of a honey-comb; but, if possible, arranged with more exactness, and in more beautiful order. The whole are covered with a transparent water-proof cement, leaving the color so much like the natural color of the branch, that they are not easily discovered. A person might tend an orchard a life-time without seeing one, if his attention was not specially called to it. These, if let alone, will remain till the warmth of spring hatches the young, when they burst the cement, and crawl downward to the first convenient offset of shoots, a little army, where they make their encampment, spin their thread, and weave it into a sort of web, spread their white coat, and thus become so distinctly visible as to be a fair subject of attack; and if taken in time, it is no great trouble to eject them. The branch, if not large, as it seldom is, should be cut off and burnt. If the branch is large, or if you insist upon sparing the small branches, rub the encampment down with a leather glove, and the enemy is extinct.

The June or July broods may be treated in the same way. The work, in this case, should be a little more thoroughly done, because, at this season, the weather being milder and less subject to north-east storms, if you let a few stragglers escape, they will sometimes rebuild their tent, and continue their mischief; whereas, in May, if the nest is broken up, little harm need be antlcipated from an occasional wanderer. The limbs, if high, may be cut by a long pair of pruning sheers, or just as well by a sharp scythe affixed to a pole. But the limbs should in all cases be gathered and burnt. There has been much said about blowing these nests with powder. An active boy would destroy ten of them in the way we have named, sooner than he would load his gun. It has been recom mended to burn them with a torch at the end of a long pole. If the torch light is hot enough to extinguish the insects, it would do the limb no good. Washes of vinegar and pepper, of salt and water, of lime, of soap-suds, and, we believe of cheap rum —which certainly would kill if anything would; at least does kill—have been recommended. Those who want to increase the labour of extermination would do well to try them.

But prevention is always better than cure; and we will now propose a plan in which we should put the greatest reliance, and will suggest a method of carrying it out most effectually. Those deposits of eggs, of which we have spoken, are hard to be seen.—But a quick eye will detect them; and the best time is in the winter; and if the ground is covered with snow, so much the better, because it reflects the light advantageously. Go through the orchard on a clear sunny day; and with your back towards the sun, look for a slight enlargement of the twigs, a swell in those from the size of your little finger down to that of a pipe stem. If you notice one, examine it with a microscope. A glass from grandmother's spectacles will do if you have no better. If you observe something of the appearance of a honey-comb, you may calculate that you have a host of embroyonic enemies in your power. Note the apppearance carefully, and you will detect another tribe more easily. But this is the best work for the boys. Their eyes are better. Let them cut off and burn these enemies, while yet in the egg. But will the boys do it? Yes, if you will inspire them with a motive. We do not much like the idea of *hiring* boys to work for their parents. And yet, why not a boy have an opportunity to earn something for himself, while other boys are at play? There can be no harm in it, if he will at the same time learn to value money, and to spend it wisely.—You may have two or three sharp-eyed boys from ten to sixteen years old. We propose that you show them a half-eagle. Explain its value. Tell them you will hold it for

them, subject to their drafts for such little expenses as you approve of their making, on the condition that they will break up all the caterpillars' nests before spring, or that if any should escape their search, they will destroy the young before you find them; the money all to be theirs with interest, if they succeed perfectly: but you to deduct a shilling for every nest not destroyed in the winter, or broken up before it meets your eye in the spring or summer.

We fancy, that by such an arrangement, the boys would learn something useful to them in after life, and that the caterpillars would learn not to trouble your premises."

CLENCHING HORSE SHOE NAILS.

As I once passed through this town, one of my horses' shoes became loose, and I went to the shop of a smith named Lovelace, to get it fastened. The shoe was nearly new, and had become loose in consequence of the nails having drawn out of the hoof, although they had been clinched in the manner universally practiced. The smith remarked that all the other shoes were loose, and would soon drop off, and when I requested him to take them off and replace them; and then did I perceive the different mode which he adopted for fixing them, which I will here detail. As fast as he drove the nails, he merely bent the points down to the hoof, without, as is customary, twisting them with the pincers; these he then *drove home,* clinching them against a heavy pair of pincers, which were not made very sharp; and after this had been very carefully done, he twisted off each nail as close as possible to the hoof; the pincers being dull, the nail would hold, so as to get a perfect *twist round* before it separated. These twists were then beaten close to the hoof and filed smooth, but not too deep, or with the view to rasp off the twist of the nail. "Oh ho!" said I, "I have learned a lesson in horse-shoeing." "Yes," said he, "and a valuable one; if I were ever to lose a single shoe in a long day's hunt, I should have to shut up my shop; my business is to shoe the horses belonging to the hunt, and the loss of a shoe would be the probable ruin of a horse, worth perhaps a thousand pounds; but I never am fearful of such an accident." "Simply because you drive home and clinch the nails before you twist them off," said I. "Yes," replied he, "by which I secure a *rivet* as well as a *clinch.*" The thing was as clear as the light of day, and I have several times endeavored to make our shoeing smiths understand it, but they cannot see the advantage it would be to *themselves*, and guess, therefore, *it would never do in these parts;* but if my brother farmers cannot see how it works with half an eye, and have not the resolution to get it put in practice, they ought to see the shoes drop from the feet of their horses daily, as I once was accustomed to do. Now, let any one take up an old horse shoe at any of the smith's shops on the road, and examine the clinch of the nails which have drawn out of the hoof, and he will soon perceive how the thing operates. In short, if the nails are driven home before twisting off, and the *rivet* formed by the *twist*, be not afterwards removed by the rasp, I should be glad to be told how the shoe is to come off at all, unless by first cutting out the twist?—*Farmers' Cabinet.*

EGYPTIAN, OR MUMMY CORN.—Perhaps the most wonderful and interesting specimen of the earth in the Horticultural Exhibition recently closed, was some *Egyptian Corn*, raised in the garden of Gen. Wm. H. Sumner, of Jamaica Plains, and kindly sent by him for exhibition, thus giving thousands an opportunity of seeing one of the greatest curiosities within our knowledge. The seed from which this corn was raised, was taken from the *folds of cloth wrapped around a mummy three or four thousand years ago*, and wonderful as it may seem, after being entombed for so many centuries, like a resurrection from the dead, it springs up in new life and vigor. It is undoubtedly the kind of grain for which Joseph's brethren went into the land of Egypt—the same "corn" of which the Bible speaks. It is luxuriant in its growth, and the heads resemble wheat, but are very much larger, forming in inverted conical clusters as large as the closed hand; the kernels are large, and very sweet to the taste, and the stock and leaves are similar to our Indian corn. There seems to be no reason why it may not become a valueable addition to our cereal productions, and thanks are due to the gentlemen who are multiplying it, and bringing it into notice.—*N. Y. Evening Post.*

THE FAMILY FIRESIDE is a nursery of virtue. How many vices are suppressed and temptations to evil overcome that there may be no *bad* example? How many exertions made to so act and live as to inculcate a *good* one?

HINTS WORTH READING.

Some of the following suggestions may be a little too late, but the lateness of the season may render them appropriate even yet.

1. Clean your cellars at some odd time soon. Look into your pork and beef tubs, and see that all is right. Sort out the bad potatoes and from fruit the good. Separate the different varieties, if they have mixed in any way. Remove from your cellar all decaying matter; and as soon as the weather becomes warm enough; give the cellar a thorough airing-and white-wash its walls neatly. Do not, however, remove the winter embankments, till all severe frosts have passed.

2. Select, if you have not done so, the best kinds of seed for sowing and planting; use your best judgement in this matter or take the advice of some competent and disinterested person. Provide *now*, for all you want this spring. A little care and expense in this line, will reward you well.

3. Repair your fences, or make new ones, when needed; the frost is out, and the sooner this work is done, the better. Make all your permanent fences strong and durable; this is the only mode that will pay.

4. Keep your hogs out of all fields, except those you design for their range. Be especially careful that they do not get into your clover fields; they will do harm enough there in a day, to pay for putting up a good many fences.

5. If your land is sandy, or a heavy turf, you may plow, with safety; but if it is clayey, and has been plowed recently, wait till it is thoroughly dry; plowing it while wet or damp, will make it hard the whole season.

6. Your hens are laying, you have plenty of eggs; peserve those you don't want for cooking or for setting your hens; pack them in salt, with the little ends down, or keep them immersed in highly satured lime-water. In either of these ways, eggs may be kept for months; if not years.

7. By the way, if you have a warm place for nests, let two or three hens *sit* as soon as they please. A little care will preserve the brood when hatched, and early chickens are delicious for the table, in the fall; or the pullets, if kept, will lay eggs next summer, if well cared for.

8. You may do certain work in your garden, as soon as the ground is dry enough to work safely. Lettuce, onions and early peas may be put in as soon as you please. In clay soils, we repeat, *never stir the soil when damp.* Currant bushes may be transplanted, or new cuttings set. Manure may be prepared, and that which is well rotted, may be spaded in. Mulching may be done, when you do not wish to stir the ground for some months.

9. Do not allow hay or straw to be wasted; preserve all that is not needed, for use at some future time; it will perhaps be needed when least expected.

10. When the ground is dry enough, transplant whatever trees need to be transplanted. Do this with the hardest trees, as soon as you can. Take great care in transplanting, to tear the roots as little as possible, and to do the work well. When you finish setting out a tree, mulch the ground well, with some coarse manure; this will prevent the effects of drought. When you buy trees for transplanting, be sure to get the kinds you wish. Nurserymen sometimes make lose statements. Deal only with responsible and reliable men.

Aparagus.—Those who have aparagus beds, must not expect that they will take care of themselves. If a good top dressing of short stable manure has not already been dug in, we recommend that as soon as possible a compost of stable manure and marsh muck mixed with three bushels of wood ashes to every cubic yard of the compost be spread over the bed to the depth of two to three inches. When this is done, then sow two or three quarts of salt to the square rod, and it will be found that the asparagus beds will repay the owner handsomely for his trouble. The asparagus plant is greedy and exhausting, and when not supplied with manure, the young shoots come up in the spring like pipe stems, and one can hardly cut a good sized bunch from a square rod of ground. Now we might just as well have asparagus coming up in the spring with shoots like hoe handles, but the ground must be made rich in the fall. A good coating such as is recommended above, protects the plants from the winter, and even when late applied,

will keep the roots growing beneath the surface, so that when the spring comes, not only are the shoots early, but when ready to cut, they are of a good size, tender, and of a delicious flavor. Salt is of great use to asparagus, and the plants will bear an extaaordinary dose. In its wild state, the natural habitat of the asparagus is near the sea or salt lakes and marshes. The top dressing, even where the bed has not been thoroughly enriched before the plants were set out, will answer every purpose, and during the next season the old plants will throw out new roots near the surface, from which strong shoots will come up the next year.

CULTURE OF THE RASPBERRY.

The Raspberry has much to recommend its culture. Immediately succeeding the Strawberry, and coming in before the larger fruits, it occupies a time when little else is to be had; it is more conveniently gathered than the strawberry; and the plants not being large enough to shade other crops in the kitchen garden, they may be set on the line of any subdivisions of the grounds. It is eminently a wholesome fruit, and sometimes valuable medicine from its expectorant qualities, which the writer proved to advantage in his own case, for whom it was recommended by high medical authority, and it was found not at all repulsive to take, even in quite large doses.

Propagation.—Most varieties increase rapidly by suckers—a few, as the American Black and White, root readily from layers, the tips of the recurved shoots being buried; and nearly all sorts may be propagated rapidly by cutting the roots into small pieces, and starting them with bottom heat. New varieties, raised from seed by crossing, often bear the second year.

Soil.—The soil should be rich and inclining to moist. A strong deep loam, is the only soil from which a full crop may be expected every season. But the most important requisit is *depth*, attained by a deep trenching, which will go far towards affording a remedy for the natural defects of a stiff clay on the one hand, and a dry gravelly or sandy soil on the other. *Irrigation* has doubled the size of the berries in a few days, and more than doubled the growth of the stems in a season,—showing the great importance of securing moisture for the roots, by a *deep*, *mellow* soil, and by *mulching*. The latter has been found of great importance and has greatly increased the crop. The tender sorts will ripen wood more perfectly, and endure cold with less injury if planted on the drier and firmer spots of ground.

Pruning.—This consists simply in cutting away, early in spring, all the last year's bearing canes, now two years old, and leaving only the one year's shoots, which will bear the coming summer. Half a dozen of the strongest in each bunch will be enough, and the rest may be cut away at the surface by the use of a sharp trowel. The tops are then cut off three or four feet from the ground.

Training.—The most common and simple mode is to tie the canes together, loosely, so that they may spread at the top in the form of a wine-glass, and employing a stake to stiffen them. An improvement on the same principle, is made by stretching a wire along the row, spreading out the canes in contact with the wire, and securing them by cord loops. Another mode is the two-year bearing-canes, being bent over in the form of an arch and tied to stakes, while the present year's shoots grow upright, to be bent down in the same way the following spring, after the old bearing canes are cut away. By this mode the bearing canes are separated from the others, and have more light and air.

Tender varieties may be protected by prostrating them and covering thinly with earth. Even when not so tender as to be killed, this protection assists their productiveness. A small earth mound should be placed against each stem to bend upon and prevent breaking.

For extensive marketing, plantations of raspberries prove quite profitable on the best soils, producing about five hundred dollars per acre in each year, when accessible to good city markets.

The best varieties of the Raspberry are the *Red Antwerp*, large, dark red, rich and juicy berry, admirably fitted for marketing; the *Fastalff*, resembling the Red Antwerp, but richer and softer in texture; the *Franconia*, quite similar, but later, of firm flesh, and is rather hardier than either the others; *Knevett's Giant*, very large, and of fine quality; *Yellow Antwerp*, large, comical, excellent, but tender, and a moderate bearer; *Col. Wilder* resembling the latter, but with smaller berries, and much hardier stems; *Large Fruited*

Monthly, large, red, bears lrte and valuable ; and *Brinckle's Orange*, regarded by many as the best of all Raspberries, vigorous, hardy, productive, handsome and excellent.

The Blackberry requires nearly the same treatmant as the Raspberry, but as it is a more rampant grower, it needs particular care in keeping it clear of suckers, and in shortening in the stems to promote fruitfulness. It should not be allowed to grow more than three or four feet high for bearing.

The best varieties are the *High Bush* and *New Rochelle.* The former are oblong, and often measure an inch and a half long. The latter is becoming a general favourite, being very large, more nearly round, and exceedingly productive.

The New Rochelle Blackberry, of which, according to Charles Downing, "a dozen or so in full bearing, will give fruit sufficient for an ordinary family for som six weeks," requires good cultivation and management. The following directions, founded on experience, are copied from the *Horticulturist*, from Geo. Seymour, & Co. :—

"We prepare the ground by plowing and manuring as for any ordinary crop. We then take young plants, cut them back within six inches of the roots, and plant in rows eight feet by four apart. The first season we use the plow and cultivator both ways between the rows, keeping the ground in good tilth. Next, or the second season, we train the plants into the four feet spaces, leaving the eight feet spaces for the plow and cultivator to work in. When the plants are five or six feet high, pinch out the leading shoots to induce the growth of vigorous side branches. In training, we prefer the bending mode to the upright.

"We regard this Blackberry as a very valuable addition to the list of small fruits, because it is so simple in its cultivation, bears regular and abundadt crops, and when perfectly ripe is of a highly agreeable flavour."

"We have only to add," says P. Barry, the editor, "that from what we have seen and heard of this fruit, it cannot fail to be an object of very profitable culture within any reasonable distance of large cities. It ripens after Strawberries and Raspberries, and before Paaches, and therefore comes most opportunely as to season. And then its cultivation must be of the easiest possible kind—only give it rich soil, and keep it clean and well cultivated, and an abundance of large fruit is certain. No one need expect such large fruit, however, as people have witnessed at New Rochelle and Norwalk, in ordinary soil and with ordinary culture. Manure must be applied unsparingly, and the ground must be kept clean and friable as work can make it. *Rich soil and clean culture* are indispensable to the growth of large fruits of any kind."

THE HOG CHOLERA.

A fatal malady has prevailed among hogs in the Ohio valley during the last six months. It is computed, that between 60,000 and 70,000 have fallen victims to the destructive distemper within a circumference of a hundred miles surrounding Cincinnati. The disease is considered incurable, having baffled the most critical investigations into its nature, and as steadily resisted all remedial agents. The malady has been vaguely denominated "cholera," from the failure to discover its true character, and upon that principle which a few years ago prompted mankind to apply the same term to all ills which resemble "cholera" in the human body, and which they did not comprehend. The distemper of which we treat, is similar in some of its operations to cholera, and in others it resembles erysipelas.

Mr. Thomas Graff, proprietor of the extensive distilleries and hog-pen apartments at Lawrenceburg, and who has lost about four thousand hogs this season by the ravages of the hog-distemper, has devoted his time patiently and indefatigably in seeking to fathom the profound and alarming mystery, but with indifferent success. His examinations, observations, and experiments, however, have satisfied him that the malady is infectious.

He at first attributed the disease to the "still-slop," with which his stock was fattened, although he entertained many doubts, from the fact that cattle fed on similar food were not affected. He, however, instituted inquiries among farmers remote from distilleries, and who fed their hogs on corn exclusively, and found the mortality equally great in their droves. He then procured four or five perfectly healthy hogs and enclosed them in a "hospital pen," where many others had died. He fed them exclusively on corn and water. In a few days they sickened and speedily died, thus proving the infectious character of the disease. He also observed that hogs belonging to farmers along the road on which the dead distempered hogs were hauled to be thrown away, were swept off by scores, thus confirming his previous test.—*Southern Planter*.

LAYING OUT ORCHARDS.

We have often observed a good deal of inconvenience and perplexity in measuring off and laying out orchards, from a want of accuracy at the commencement. If the rows are begun crooked, stake after stake may be altered, without being able to form straight lines and with only an increase of the confusion. If the first tree, in a row of fifty, be placed only six inches out of the way, and be followed as a guide for the rest, the last one will deviate fifty times six inches, or twenty-five feet from a right line, even if the first error is not repeated. We have seen large apple orchards with rows nearly as crooked as this. To say nothing of the deformed appearance to the eye, they proved exceedingly inconvenient every time the crooked space between the rows was plowed, and every time the ground was planted and cultivated with crops in rows.

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a  b  c  d  e  f  g  h  i
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*  *  *  *  *  *  *  *  *
a  b  c  d  e  f  g  h  i
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Fig. 1—Common or Square Arrangement.

The most simple and convenient arrangement for orchards in all ordinary eases, is in squares, as shown in Fig. 1. But planters are often puzzled to know how to lay out such orchards with trees at equal distances throughout, and in perfectly straight rows. The easiest and most successful mode is first to measure off one side along the boundary, with a chain or tape-line (a chain is best,) and drive in a stake perpendicularly at equal distances, (say two rods or 33 feet,) *in a straight line,* and at a proper distance from the fence for the first row of trees. Then measure off each end in the same way; and between the two last stakes in these end rows, form another line of stakes like the first, which will be parallel and opposite to it. The more accurately the measuring is done, the less labor will be required in rectifying small errors—no stake should stand half an inch out of a straight line. These rows are represented by the letters a, b, c, d, e, f, g, h, i. Then measure off the distance between a and a, driving in a small stake or peg at each distance of two rods; and then in the same way between b b, c c, &. If accurately done, these will all form perfectly straight rows. The holes may then be dug without the least difficulty or embarrassment, and the trees dug out. But a difficulty arises,—as the stakes must be removed in digging the holes; this is at once obviated by the plan here proposed by placing the tree in a line with the row of stakes on one side, and with the newly set trees on the other, as the holes are successively dug, and the trees set.

These directions may seem quite simple, but for want of being generally understood, a great many crooked lines of trees are seen through the country.

The second mode of arranging trees is in the old *quincunx* form (fig. 2) which is nothing more than a series of squares laid off diagonally, and has no special advantage to recommend it except novelty.

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  *   *   *   *   *   *
*   *   *   *   *   *   *
  *   *   *   *   *   *
*   *   *   *   *   *   *
  *       *   *   *   *
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Fig. 2—Old Quincunx Order.

The *hexagonal or modern quincunx,* (fig. 3) possesses two important advantages. One is its more picturesque appearance, and its consequent fitness for proximity to ornamental plantations; and the other is its greater economy of space, as the trees are more

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*   *   *   *   *   *   *   *   *   *
  *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
  *   *   *   *   *   *   *   *   *
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FIG. 3—HEXAGONAL OR MODERN QUINCUNX.

evenly distributed over the ground. This is shown in fig. 4, where each tree stands in the centre of a circle surrounded at equal distances by six other trees, and each single circle leaves but little vacant space beyond it. If cultivated with horses, the furrows may be drawn ln three in three different directions, instead of only two as in the square arrangement.

One principal reason why the hexagonal mode is so little adopted, is the supposed difficulty in laying out the ground. But like many other apparent difficulties, it becomes very simple and easy when once understood.

A BAD HABIT.—It has been said, to "*break* a horse of the habit of *breaking* his halter, you must *break* his neck;" and some person, desirous of saving time by performing the three feats at once, has recommended that the horse be tied on the bank of a stream, in such a position that when he breaks his halter he may turn a somerset into the water. But, on the contrary, a horse can be broken of the trick, and that without endangering his life or limbs. The remedy is simply to tie the horse, with a good stout halter, to the end of a stout limb of a tree near the ground. A horse does not break his halter by a steady pull, but by jerking at it, and as the limb will spring whenever he jerks, it will prevent his snapping it. Tie the horse in various places. (to limbs,) because if he is kept tied in one place he soon gives up pulling at the halter there, but when tied to a post he soon resumes his old tricks.—*True Flag.*

The best way to break the animal of the above habit is not to halter him, but let him remain loose in the stall, merely tying a rope across the entrance of the stall.

A MISER'S EPITAPH.—What I spent, I saved; what I gave, I have; what I saved, I lost.

THE FARMER'S WIFE.

[Dear Sir,—The following stanzas, which I have entitled "The Farmer's Wife," are taken principally from the 31st chapter of the Book of Proverbs. If you judge them suitable you can give them a place in the *Agriculturist.*—About a year ago I sent you a few stanzas entitled "Success to the Farmer," which you inserted, and which were afterwards copied into the *Mark Lane Express.*

Kind Heaven, bless the farmer's wife
With happiness and health;
Her virtuous ways shall speak her praise
Better than rank or wealth.

Her husband's heart—O happy man!
Shall safely trust his wife;
In drink and food she'll do him good
Through all her useful life.

For winter, and for summer wear,
She works in wool and flax,
And while she spins she sweetly sings
The honours of her sex.

She rises e'er the morning light
To give her household bread;
New work prepares, and old repairs,
While sluggards are in bed.

She milks her kine, she makes her cheese;
Her butter's sweet and clean;
Her linen 's white, her bread is light—
She's happier than a Queen.

No wilful waste, or woeful want,
Shall come within her door;
In time of need, she'll clothe and feed,
The industrious humble poor.

She's not afraid of frost or snow,
For all her household band—
Happy and glad, are warmly clad
By her industrious hand.

Her husband through her pious deeds
Is known where'er he goes;
He's not afraid to lift his head
'Midst friends or haughty foes.

The law of kindness rules her tongue;
She eats no idle bread.
Honour and truth, in age and youth,
Shall well anoint her head.

Her children (happy is their lot!)
Shall bless their mother's name:
Her husband's praise, shall crown her days,
And herald forth her fame.

Though favour may deceitful prove,
And beauty bloom in vain;
The virtuous wife of pious life
In bliss supreme shall reign.

Sparta, April 16th, 1857.

WILLIAM PETHERICK.

Hard or Soft Water in Cooking.—Nearly every one knows that *hard* water is such in consequence of its containing a small quantity of carbonate of lime, whereas *soft* water is nearly pure. It may not have occurred to every one that this difference often becomes an important one in the daily process of cooking. When vegetables are boiled in hard water, a deposit of this lime is made upon the surface of the vegetables, as peas, beans, corn, &c., by which process the food is not only not so thoroughly cooked in a given time, but even when done is not so well done. It is always harder when cooked, and less healthy. The minute deposit of lime upon the surface of such vegetables, not only impairs the taste and diminishes the softness of the food, but also acts unfavorably upon the digestion—an effect important to those in health, and doubly so to invalids. This subject might be expanded at some length, but we merely suggest it, and leave it for the reader's consideration, whether a pure soft water is not preferable to hard, for all the ordinary processes of cooking.—J. E. S.

Water-proof Textile Fabrics.—Take one pound of wheat bran, and one ounce of glue, and boil them in three gallons of water in a tin vessel for half an hour. Now lift the vessel from the fire, and set it aside for ten minutes; during this period the bran will fall to the bottom, leaving a clear liquor above, which is to be poured off, and the bran thrown away; one pound of bar soap cut into small pieces is now to be dissolved in it. The liquor may be put on the fire in the tin pan, and stirred until all the soap is dissolved. In another vessel, one pound of alum is dissolved in half a gallon of water; this is added to the soap-bran liquor while it is boiling, and all is well stirred; this forms the water-proofing liquor. It is used while cool. The textile fabric to be rendered water-proof is immersed in it, and pressed between the hands until it is perfectly saturated. It is now wrung, to squeeze out as much of the free liquor as possible, then shaken or stretched, and hung up to dry in a warm room, or in a dry atmosphere out-doors. When dry, the fabric or cloth so treated will repel rain and moisture, but allow the air or perspiration to pass through it.

The alum gluten, gelatine and soap, unite together, and form an insoluble compound, which coats every fibre of the textile fabric, and when dry, repels water like the natural oil in the feathers of a duck. There are various substances which are soluble in water singly, but when combined, form insoluble compounds, and *vice versa.* Alum, soap and gelatine are soluble in water singly, but form insoluble compounds when united chemically. Oil is insoluble in water singly, but combined with caustic soda or potash, it forms soluble soap. Such are some of the useful curiosities of chemistry.—*Scientific American.*

SALE OF NORTH DEVON CATTLE.

We would call attention to the Sale of North Devons by Mr. Wainwright, advertised in our present number. We are assured that this is one of the best herds in the United States, and the animals advertised will be sold.

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THE MURRAIN, OR CATTLE PLAGUE.

Much alarm is felt in Great Britain at the progress of the "murrain," among the cattle of Northern Europe. Steps have been taken by the British Government to prevent the importation of hides or cattle from the infected countries. We cannot regard ourselves as safe from the disease in this country, but we are not aware that we can do any thing to prevent its approach. If it reaches the United States, it will be apt to visit us also. The following description of the disease is from the *London Times*:—

There are three complaints which, on the continent, are popularly called "Vieh-seuche" (cattle plagues). The first is a catarrhal affection of the lungs; the second a pulmonary complaint with typhoid symptoms; and the third a highly contagious typhus (*typhus bovum contagiosus*). In letters which have appeared in the *Times*, Mr. Redcliffe speaks of the pulmonary complaint with typhoid symptoms; Mr. Gamgee of the contagious typhus, which is the real cattle plague (Rinder pest,) or Murrain of the Steppe; and Dr. Greenhow of the "lung disease," which may mean either the simple catarrhal affection of the lungs or the pulmonary complaint with the typhoid symptoms. As it is doubtful which of the murrains is now raging in those countries from which cattle, hides, &c., have recently been exported to England, the distinctive symptoms of all three will now be described. The principal symptoms of simple catarrhal affection of the lungs are——first, shivering at the commencement of the malady; second, sadness and prostration of strength; third, the pulse is quicker than usual, and there is fever; fourth, the skin feels dry; fifth, the cough, which is first dry and hollow, and comes by fits and starts. After a lapse of four or five days the cough gets "loose," and there is a discharge of phlegm; a rattling noise is heard when the animal draws its breath, and a frothy mucous escapes from its nostrils when it allows its head to droop. It is only under unfavourable circumstances, such as immoderate excitement, a naturally bad constitution, or injurious treatment, that the catarrhal inflamation of the lungs ends fatally, but a chronic secretion of phlegm and asthmetic cough often remain for a considerable time after the animal is convalescent. The "lung disease," combined with typhus, may be divided into three periods. The symptoms of the first period, during which there is no fever, are—sadness and prostration of strength; secondly, drooping head and pendulous ears; thirdly, eyes fixed, without loss either of lustre or of colour (in vigorous animals the eyes are often red and fiery, but dry;) fourthly, the skin of the nostrils pale, and the inside of the mouth "slimy;" fifth, the temperature of the body low, with horns, ears, and feet cool; sixth, the skin dry and tense (stretched), the hair lustreless, rough, and bristly, and erected along the spine; seventh, breathing difficult. The first part sometimes lasts a fortnight or three weeks; the second, or feverish period, lasts three or four days. The symptoms

are those above described, with feverish movements. The diseased animal has first a shivering, considerable exacerbation in the evening, and remission of fever towards the middle of the day. After the cold or aguish fits are over, the reaction is much less violent than in other inflammatory complaints. Each paroxysm of fever is accompanied by an acceleration of the respiration, which is audible, and often accompanied by a moaning sound. The weakness and exhaustation of the animal are very great; the temperature of the ears, horns, and legs changes continually—now warm and now cold; the skin is dry and rough, and looks as if dust was strewn on it; the hair is erect, and the eyes, which are opened wide, are projecting, dry, shining, and fixed. The pupil is dilated; the nostrils are covered with slimy secretion, which the suffering animal frequently removes with his tongue; the teeth are close; the loins are so sensitive that the pressure of the hand cannot be borne without shrinking, and the pain in the chest increases. The animal lies down but seldom, and when it does so it is on the side on which the lung is affected. If both legs are diseased the animal rests on its breastbone, with its legs under its body, and its head and neck stretched out. The alvine secretion is often either entirely suppressed or very scanty. The urine is dark in colour and pungent in smell. During the third period, which commonly ends in death, the uneasiness and agitation of the animal are extreme. It continually changes its position, and draws back from the crib to the length of its tether, The eyes sink and become glazed, and the lids fall as if the animal were about to sleep; the horns, ears, and nose are cold: the mouth is filled with offensive phlegm and slaver, and an ill-coloured secretion flows from the nostrils. The animal gnashes its teeth, which are loose and shaky; the hair becomes more and more bristly, and the emaciation is rapid. At this period of the disease, the pulse is often above a 100 a minute. The real cattle plague, or, as it is called in Austria, the "*Loser-Durre*," has four periods. During the first period, which begins about five days after the infection has taken place, the following symptoms are observable:—1. The animal is generally languid, its movements are heavy, its gait is tottering, and it is less sensible than usual to outward impressions; in other cases it bellows and beats the ground with its hoofs, and is unusually unruly and vicious. 2. The appetite is often much greater than usual, but after the animal has swallowed its food it appears inattentive to what is passing around, and hangs its head and ears. 3. When the animal rises from the earth it does not stretch itself, as healthy animals usually do, and instead of sinking its back it arches it. 4. The eye has more lustre than usual, and its vessels are slightly reddened. 5. Tremulous movements are perceptible in the skin, and the hair on some parts of it becomes rough. 6. After the fourth or fifth day the animal coughs at intervals, and often groans. 7. The animal licks its chaps less than usual. 8. No strong pressure with the hand can be borne, and the back immediately sinks if the loins are squeezed. 9. The "droppings" are dryer, and less furrowed than is usual. On the eighth day after the infection the plague is regularly declared. The symptoms are:—1. Aguish paroxyisms, and often a twitching of the whole skin. 2. Bristling of the hair. 3. Trembling of the limbs, and particularly of the hind quarters. 4. During the paroxysm the animal is generally very uneasy; it stamps, holds up its head, and shakes it continually. The vigorous cattle are very violent in their movements, have a wild eye, snort and bellow, and devour their food greedily. The weak and aged beasts, which are less wild and unruly, shake their heads and grind their teeth. 5. The roots of the horns and the hanging ears are sometimes very hot and sometimes cool. 6. The chaps and muzzle are dry, the interior of the mouth is of a light red, and steaming hot, the gums swollen and spongy, and the incisors somewhat loose. The gums have frequently spots of a deep red. 7. The sensitiveness of the loins increase. 8. The skin is extremely tense. 9. The pulsation is accelerated. 10. A single (not continuous) violent, hollow, and convulsive cough, which is totally different from any other. 11. The rumination is incomplete and interrupted. 12. The alvine excretion is scanty, dark, sometimes almost black, parched, and deeply furrowed. The discharge takes place very frequently. 13. The tail is either extended in a horizontal line or used to strike the sides of the animal, which continually looks around to its hind quarters. 14. The urine is of a high red colour. 15. It is frequently the case that the air bladders can be felt under the skin on the back and loins. 16. The fever increases in the evening, and becomes less violent in the morning. 17. The milk in cows diminishes, and in some cases is altogether dried up. During the third period, which begins on the ninth or tenth day from the infection, all the above-mentioned symptoms increase in violence. The animal is excessively weak and sad, stands at a distance from the crib, and hangs its head almost down to the ground. If the lungs

are much affected it lies down a great deal, but if not it remains on its legs. The emaciation is extreme. The eyes begin to run, and a clear white, visceous fluid flows from the nose. By degrees the tears thicken, and form a crust which half covers the eye; the discharge from the nose becomes cloudy and "glandery;" the tongue is flaccid, and the breath has a peculiar and almost putrid smell. The rumination ceases entirely. The alvine secretions are now watery, and are ejected, or rather squirted out, with great violence. The animal suffers greatly from tenesmus. If there is no diarrhœa, which is sometimes the case, the hind part of the body is greatly swollen. On the thirteenth or fourteenth day, when the complaint has reached the highest pitch, the fourth period begins. The animal can hardly keep on its legs, a thick ash-gray fluid runs from its glazed eyes, a corrosive secretion escapes from its nose, a thick phlegm fills its mouth, and the putrid exhalation becomes almost unbearable. The skin of the mouth and the gums is dried up, "and the tallow-like skin of the animal peels off in great flakes." The serous and even bloody alvine secretion is discharged almost without interruption; the head of the sufferer is continually twitched round to its hind quarters. Death generally ensues on or about the 17th day after the infection. The symptoms of the three different "murrains" have been given at considerable length, in order that those veterinary surgeons who have never had an opportunity of seeing cattle which were affected with either of them may be able to distinguish one disease from the other.

STUDY THE INSECTS.

Although a good deal of ridicule has been expended upon the Minister of Agriculture's attempts to catch the "Weevil" an insect, we believe, seldom seen in Canada; yet we hope the inquiries which have been set on foot by his prizes, may result in benefit to the agricultural public. A better method might have been adopted if the learned Minister had been acquainted, practically, with his subject. We hope the prize essay will soon appear, that we may have an opportunity of laying its "facts" before our readers. We have little faith in the remedies likely to be suggested by Mr. Vankoughnet's essayists. What is wanted *first*, is an accurate knowledge of the kinds of insects to be guarded against. To obtain this, a series of observations must be made in every county, if not in every township, of the Province. When we know the family or order to which the insect belongs, its habits &c., then we will be in a position to adopt remedies if any be practicable. A Dr. Sanborn, in a lecture recently delivered in the Representative's Hall, Boston, recommends the following:—

"For the diffusion of useful knowledge of insects he said that he had two plans to propose. The first was to have their *pictures taken* and shown up, so that all farmers and children should "know them like a book." He would have the most prominent ones taken in their three different stages from the egg, with that included, when practicable, with common and scientific names, and characteristics, &c., and published in a kind of text or handbook, rendered so cheap by legislative patronage as to be afforded in every farm house, so that every occupant on finding a new insect might find it there also, and know at once how to treat it.

The Doctor's next method was to have farmers preserve one specimen of all kinds of insects found on their farms during the season, and exhibit them at agricultural fairs, where competent committees should examine, label and illustrate to the assembled host of listeners each specimen, and award premiums according to merit."

We like the plan suggested by Dr. Sanborn. It would afford both amusement and practical instruction to a farmer, if he would spend a little time in collecting specimens of insects and studying their manners and customs, and such collections would make a useful exhibition at cattle shows.

BREEDING DOMESTIC ANIMALS.

There are some curious truths portrayed in the following interesting article, and while they are novel in character, they are equally fearless, and certainly worthy of close observation. We find the following in the *Ohio Farmer*:—

1. The question of breeding *in-and-in* is one of very great importance. It is known how much diversity of opinion exists in regard to it; with, I think, a general drift of public sentiment against it. What I have to say is the result of experience and very careful consideration of all the facts and principles involved; so far as I was possessed of them. Let it go as part of the means, by which others may make up a more reliable judgment.

2. There are two kinds of in-and-in breeding, which are, in my opinion, to be carefully distinguished from each other. That which is up and down; and that which is collateral. And then that which is collateral, is liable to produce very different results, according as the relationship is complete, or only partial. And again, that which is up-and-down, is liable to produce very different results, whether it is direct or immediate, or whether a generation or two intervenes. I will add, that far more depends upon the particular race of animals under question, where this matter of in-and-in breeding is to be decided, than is generally supposed.

3. A full brother and sister are just twice as much akin to each other, as either of them is, to either of its parents. They have the very same blood; whereas, each of them has only one-half of the blood of each parent. The breeding of a full brother and sister together, is therefore, twice as close in-breeding, as to breed either of them to either of their parents. The half-brother and sister, have exactly as much common blood, as the parent and issue; and cousins in the first degree, precisely as much as the grand parent and its grand issue. The great grandsire, or dam of an animal, has only one-eighth part of common blood with it; which is the same common blood as exists between cousins in the second degree. Many breeders would carefully avoid the former cross, while they would not think the common blood in the latter, worth considering.

4. It is at once curious and important to consider what an immense mixture of blood takes place in a few generations. An animal has one sire only; in the second degree two; in the third degree four; in the fourth degree eight; in the fifth degree sixteen. Here are five descents—the smallest number any one is content with, as proof of a pure pedigree. But in these five descents we have no less than 32 ancestors, male and female, whose blood is mingled in the veins of the single animal we are interested in. And if we will add a few more crosses, how rapid is the increase; in the sixth degree alone, thirty-ancestors of both sexes;* in the seventh degree, sixty-four ancestors of both sexes; in the eighth degree, one hundred and twenty-eight; in the ninth degree, two hundred and fifty six; in the tenth degree, five hundred and twelve. That is, at this tenth degree, which you will see so pompously insisted on, in multitudes of pedigrees, our animal can count 1054 ancestors; with the most remote of whom, he has the 2128th part of common blood! How is it possible for us to know any thing *special* of the *personal* peculiarities of the fiftieth part of these 1054 ancestors? How can we guess which one of them it may be, after which our animal is '*taken?*' Let us be modest and reasonable about things involved in so much uncertainty, the moment we pass beyond great and general laws.

5. We are to remember, however, that this widening and ascending process must not only have an end, but in its last half must exactly reverse its first half. Take a bull descended from the bull Hubback, or a stallion descended from the Godolphin Arabian; the two ends of these pedigrees will terminate on the points of two cones, of which the bases are united in the middle. You trace up to the widest number of ancestors; then you narrow in, and concentrate at last upon the original parent—say Hubback, or the Godolphin. Examine this carefully, and observe what an immensity of in-and-in work there was, in widening from the original starting point; and then how much more, in narrowing back to our animal. Consider what a vast proportion of Durham cattle with pure pedigrees, trace back to Hubback—what an immense mass of high bred horses, trace

* This must refer to one sex only—either sire or dam.—*Ed. Ohio Farmer.*

back to the Godolphin. These are but illustrations; but they illustrate facts and principles of the very highest importance; and these cases are used only because they are notorious and unquestionable.

6. You may cut off the ears and tails of ten thousand rams, and yet after that, every one of them will beget lambs, with full ears and long tails. But if a ram chances to be *born* without ears and without a tail, he is nearly certain to beget *some lambs* with these same peculiarities. And these of his get, are still more certain to beget others with these peculiarities; and the certainty increases with every generation. At length, you *establish* that variety of sheep. *Occasionally*, a tail and ears may come forth; just as *occasionally*, a black nose, in the Durham. It is in this manner that only *congenital* peculiarities are capable of being re-produced and perpetuated; and it is perfectly obvious that the more thoroughly you adhere to such as have the peculiarity, the more certain you are to establish and perpetuate it.

7. To a certain extent, therefore, all *pure* breeding is in-and-in breeding. If you step over a certain circle, within which all are of the same blood, you get back at one step, nearly to the point where some one started, perhaps a thousand years ago, with the primeval individual, with the accidental natural peculiarity, which now marks such, or such a race. Inside of this circle, within which you must confine yourself, in all pure breeding, there are many other smaller circles, all of which become more intensely affiliated to certain purities, or certain peculiarities; the innermost one of which, is the very closest in and-in breeding. It is the very same principle which runs all through. The only real question is, as to the wisest method of its application. Pure breeding, and in-and-in breeding, are the same thing.

8. The experience of the most successful breeders in all countries, has continually verified those results, which the fair theoretical analysis of the facts of the case establishes; and incontestably proves the clamor against in-and-in breeding to be in effect tantamount to a clamor against all thorough breeding.

In the first place, let us rest satisfied that beyond a doubt, our animal is half-blooded of his father, and the other half of his mother; and therefore, let us be perfectly certain who they are, and what they are; for half his blood is quite another thing, from the thousandth part of his blood. And in the next place, if thus produced from a father and a mother, that suited us—and if he or she also suits us—let us rest assured that we run no serious risk of being unsuited by pressing these suitable things a little further, watching as we go. The sire and dam of *Renick*, were full brother and sister; the closest possible. If all is well, we have thus intensified all the qualities we have obtained. Don't try it much quite so near; but don't fear. They say your stock will become barren. In more than thirty years, I never raised a barren cow, that was not a Free-Martin; and I have a cow at present that brought me four fine calves, at two births, in less than one year, and raised them all.

AGRICOLA.

A FRENCH STEAM-PLOW.—In Scheidtmann's *Landwirthschaftlicher Anzeiger* ("Agricultural Advertiser,") a paragraph appears respecting a new steam-plow of French invention. To the question whether for tillage and draining by means of the steam engine, the English, after extensive and costly efforts, have given a practical solution, or whether their neighbor, their rivals in agriculture or art, the French, answer remains to be given. Lately a "steam-plow and drainage company" has suddenly appeared in Paris, which issues a circular containing the following paragraph:—"What the English have not brought to perfection, has existed in France for several years—at first imperfect, but which, through experiments and sacrifices, has been perfected. It is constructed by the brothers Barrat, and is called *la piocheuse* ('the pick-axer')—a machine which, from the description, may be supposed to do its duty with a series of revolving or descending mattocks. The machine is a locomotive, which carries itself over the soil, and digs it up to the depth of from 15 to 20 centimetres. It has no resemblance to a plow, and does its work better than any plow heretofore constructed. This solution of an important problem has cost the brothers Barrat much time and money; but they have gained their object, for they have just founded a company to carry out their invention. The capital is a million of francs, in 2,000 shares of 500 francs ($100) each.

FARM-YARD MANURE—ECONOMY IN MANAGEMENT.

Let our farmers, who own their soil, read the following, from the London *Farmer's Magazine,* and then decide if methods which would warrant tenant farmers in outlays for improvements, may not suggest what should be done by those who cultivate their own farms. Our back volumes give many articles on the management of barn-yard manures, and we hope the following will cause them to be read.—Ed.

Upon a careful investigation, we safely assert that 20 per cent. of ordinary farm-yard manure is wasted. An examination of ten farm-homesteads consecutively taken, has fully established this supposition. In six of these, the whole of the water from the roofs of the buildings fell directly into the yards. In two instances, the buildings were supplied partially with water-shoots, but these were in such imperfect order as to be nearly useless; and in neither of the other two cases, did they effectually answer the purpose for which they had been put up. Where the yards were of large dimensions, pools of liquid manure were found standing full to the edge, and which, after becoming filled, ran over into the nearest pond or ditch in a continuous stream of black liquid. No attempt had ever been made to carry it away in that state—no tanks having been formed for its reception.

In most instances, sufficient litter was at hand to render the yards tolerably comfortable for the cattle, although in rainy seasons this appeared almost impossible; so that the manure became subjected to continuous wastings for weeks together.

It is too much the fashion to look about for improvements, and forget that the first necessity for them exists at home. Year after year passes away regardless of consequences, and thus manure sufficient for the annual supply of the farm is lost once in every five years, and in some instances in a far less space of time. It has ever been thus, and will probably continue to be so, unless tenants can be awakened to the importance of the question; and this, if left to themselves to correct, would probably even then never take place. Whenever this subject has been individually adverted to, the answer is invariably, "My landlord will not do anything." The same observation applies to the improvement of buildings, to drainage, and to every other point of recent introduction.—Unless, perhaps, in the case of some few spirited individuals, things remain as they have done, and will probably continue to do so until the expiration of their occupation arrives,

The inquirer will probably ask, How can it be so? whose interest is it to set about this? and why is it not carried out? Here, again we stumble; the law existing between landlord and tenant is the chief obstacle. It is manifestly the landlord's interest to supply his farm with suitable and properly-constructed buildings, and to see that they are constructed upon the best principle for insuring the economy of the manure. He takes care to restrict his tenant from selling off his farm any of the hay, straw, or roots, when yearly, from the bad construction of the premises alone, as much manure becomes wasted as would be equivalent to what a moiety of the hay, under proper management would have produced.

If landlords could understand the depreciation that gradually takes place upon farms where little live stock is kept, they might soon be enabled to appreciate this question. Information must be acquired by observing the progressive improvement that follows upon good management, with suitable home-stalls for making the best of the manure. We have seen the produce doubled, and even trebbled in seven years, under good management when due encouragement has been given; and we know of no investment so profitable to a tenant, as that expended in the erection or improvement of properly-constructed buildings. Covered farm-yards may by some be thought too expensive, although undoubtedly the best of all; and where other good buildings exist, they may be judiciously combined with them at a moderate expense. It is stated that on this system, Mr. Cook, of Semer, Suffolk, has been most successful. But in absence of such a plan, another may be adopted; sufficient open sheds might be erected and so placed as to render great assistance under the general arrangement for carrying away the water from the buildings, especially when thatch predominates as the covering. The cost will be found trifling comparatively with the benefit to be derived, and from our experience

we know that upon farms of from 200 to 500 acres, it might be well executed at from twenty to thirty pounds.

Another obstacle to the proper manufacture of manure, is the great extent of the yards. Wherever this is the case they should be reduced, by the erection of fences to a proper size, and be so divided as to be available for each kind of stock. Where placed upon a regularly-inclined plane surface, fences with brick foundations should be put up, and the soil raised at one part and lowered at another, so as to bring them upon a level, or as near thereto as can possibly be effected. Of all descriptions of farm-yards, those having an abrupt inclination in one direction are the worst to deal with, and are more subject to losses from the effects of heavy rains than those of any other description. Although not easily remedied, by carefully disposing the walls and placing tanks In proper positions, little loss need be sustained; and, indeed, in almost every case that has come under our notice, we have found that from £50 to £100 judiciously laid out will effect a great deal, and in most instances all that is required.

Why this is not carried out may be readily answered. Each party, as landlord .and tenant, imagines that it is the place of the other to put it into execution; and thus, partly from obstinacy and .partly to save themselves the expense, it is never performed. It would be, however, very reasonable for a landlord to say to his tenant, "I perceive that your manure is annually wasted, to the great injury of yourself and my farm, and to prevent which I am willing to meet you in the expense of the improvements." Or, if in a position to take all the outlay upon himself, he might make the improvement, and charge six per cent. by way of increased rent, and this he might invariably venture to do whenever the farm changed tenants.

The question is too important to be lost sight of; and we hope that these remarks may keep the question prominently before our rerders. As we have already stated, the amount of good would be immense, whilst under the most disadvantageous circumstances the outlay necessary to obtain it, would be trifling in proportion with the benefit to be derived.

BRIMSTONE FOR CROWS.

The *Maine Farmer,* thus discourseth on the subject of scare-crows:—

The scare crow season is at hand. In the course of the coming thirty days what lots of images will start up in our corn fields. The human figure will be portrayed in all sorts of postures, costumes and colors,—some will be headless and some will be hatless, some with coats a world too large, and some with no coats at all, and yet they will all be armed with something with which to kill the crow. They may die "*a larfing*" as Sam Slick says, for we can see no other way by which they can affect them in the least. In additon to the old clothes statuary which will throng the corn fields, we shall see the results of a great deal of Yankee ingenuity. Some fields will be surrounded with yarn enough to make stockings for half a dozen barefooted beggars. Some will have strips of cedar or bass-wood bark strung like telegraph wires from pole to pole. Poles will also be placed around on which will hang by a string, ever turning and ever twisting old bottles, old coffee pots, strips of tin and such like "paraphernalia," all of which will please the sight as well as tickle the fancy of all the crows in the neighborhood. All of them as they fly down to regale themselves with the sweet kernels at the bottom of the springing corn will no doubt look upon them as very curious but exceedingly harmless.

In addition to all these, some recommend one thing and some another. One method is, soak corn in New England rum, and lay it in the field, and thus the crows who eat it become drunk, and easily become a prey like all other drunkards to those who furnish the liquor. We think this is demoralizing the crows too bad.

We like the method recommended by Mr. S. Mitchell, of Cameron, N. Y., who gives notice in the last number of the *Genesee Farmer*, that after trying all the Yankee tricks and dosing the crows with ratsbane without any effect, he has found that a pound of sulphur mixed with plaster and ashes, and a handful scattered on to the corn as it peeps out of the ground will be sufficient to protect an acre from their ravages. We presume the reason of this is that by the heat and action of the ashes, the sulphur becomes changed so as to throw out sulphurous fumes which give the crows a hint of the doom of all thieves, and they quit.

VEGETATION IN THE ARCTIC REGIONS.

The first flowers of summer, that were found under the snow by Dr. Kane, are thus spoken of in his account of his last expedition to the Polar seas:

Another walk on shore (June 11th) showed me the andromeda in flower, and the saxifrages and carices green under the dried tufts of last year. This rapidly maturing vegetation is of curious interest. The andromeda tertragona had advanced rapidly towards fructification without a corresponding development of either stalk or leaflet. In fact, all the heaths—and there were three species around our harbour—had a thoroughly moorland and stunted aspect. Instead of the graceful growth which should characterize them, they showed only a low scrubby sod or turf, yet studded with flowers. The spots from which I gathered them were well infiltrated with melted snows, and the rocks enclosed them so as to aid the solar heat by reverberation. Here, too, silene and cerathium, as well as the characteristic flower-growths of the latter summer, the poppy, and sorrel and saxifrages, were already recognisable.

Few of us at home can realize the protecting value of this warm coverlet of snow.—No eider down in the cradle of an infant is tucked in more kindly than the sleeping-dress of winter about this feeble flower-life. The first warm snows of August and September falling on a thickly bleached carpet of grasses, heaths and willows, enshrine the flowery growths which nestle round them in a non-conducting air chamber; and, as each successive snow increases the thickness of the cover, we have, before the intense cold of Winter sets in, a light cellular bed covered by drift, six, eight, or ten feet deep, in which the plant retains its vitality. The frozen subsoil does not encroach upon this narrow zone of vegetation. I have found in mid-winter, in this high latitude of 79°, the surface so nearly moist as to be friable to the touch; and upon the ice-floes commencing with a surface temperature of 30° below zero, I found at two feet deep a temperature of 8° below, at four feet 2° above, and at eight feet 26° above. This was on the largest of a range of east and west hummock-drifts in the open way off Cape Stafford. The glacier with which we became so familiar with afterwards at Eiah, yields an uninterrupted stream throughout the year.

My experiments prove that the conducting power of the snow is proportioned to its compression by winds, rain, drifts and congelation. The early spring and late fall and summer snows are more cellular and less condensed, than the nearly impalpable powder of winter. The drifts, therefore, that accumulate during nine months of the year, are dispersed in well-defined layers of different density. We have first the warm cellular snows of Fall, which surround the plant, next the fine impacted snow-dust of Winter, and above these the later humid deposits of the Spring.

It is interesting to observe the effects of this disposition of layers upon the safety of the vegetable growths below them. These, at least in the earlier summer, occupy the inclined slopes that face the sun, and the several strata of snow take of course the same inclination. The consequence is that as the upper snow is dissipated by the early thawings, and sinks upon the more compact layer below, it is to a great extent arrested, and runs off like rain from a slope of clay. The plant reposes thus in its cellular bed, guarded from the rush of waters, and protected too from the nightly frosts by the ice roof above it.

Sharpening Edged Tools.—It has long been known that the simplest method of sharpening a razor is to put it for half an hour in water, to which has been added one twentieth of its weight of muriatic or sulphuric acid, then lightly wipe it off, and after a few hours set it on a hone. The acid here supplies the place of a whetstone by corroding the whole surface uniformly, so that nothing further than a smooth polish is necessary. The process never injures good blades, while badly hardened ones are frequently improved by it, although the cause of such improvement remains unexplained. Of late this process has been applied to many other cutting implements. The workman at the beginning of his noon spell or when he leaves off in the evening, moistens the blades of his tools with water acidified as above, the cost of which is almost nothing. This saves the consumption of time and labour in whetting, which moreover speedily wears on the blades. The mode of sharpening here indicated would be found especially advantageous for scythes and sickles.—*Timbs' "Year-Book of Facts,"* 1857, p. 49.

EXPORTATION OF STOCK TO CANADA.

The *Thetis*, John Blair, master, sailed from Annan Waterfoot, on the 13th instant, for Quebec, and carries out a goodly number of live stock for Western Canada. She has on board a stallion, a draught mare, and a Shetland pony, 12 cattle, including 2 bulls, and about 40 sheep of the Leicester and Cotswold breeds; She has 2 setters and 2 sheep dogs, a number of fowls; several agricultural implements, such as carts, turnip-drills and cutters, and a few passengers in charge of the stock. Part of the stock was purchased in Yorkshire, Gloucestershire, and Cumberland, and a considerable portion is from Dumfriesshire. The stallion—a fine one-year black horse—was purchased from Mr. Johnston, Petherhill, Cumberland, and is considered to be as good a horse as has yet gone out to Canada. The filly was supplied by Mr. James Beattie, of Newbie House, Annan, who also furnished a Galloway heifer by his late celebrated "Mosstrooper," a splendid Cotswold ram and three gimmers, and two Leicester rams and four gimmers, from his prize stock, a cross from Mr. Sandy's best blood. The Cotswold ram—a three shear one—weighs 28½ stone, and cost £50. One of the bulls—a roan coloured short-horn—was bred by Mr. Robinson, Leckby Palace, Yorkshire, and has taken first prizes at Wetherby, Kelso, and other places. Mr. Syme, Redkirk, supplies three short-horn heifers from his well known first-rate stock. Some of the stock is for Mr. Letty, of Western Canada, but the greater portion is for the Messrs. Miller, of Pickering and Markham, who went out to Canada from the neighbourhood of Annan, a number of years since. Messrs. Miller's stock is in charge of Mr. Simon Beattie, (a nephew of Mr. Beattie Newbie,) by whom it was also selected; the Yorkshire portion chiefly from the well known stock of Messrs. Hannan and Simpson. From the latter gentleman, he carries out, at a cost of about £60, a pure bred Leicester ram, "Yorkshire Champion," which has won several first prizes, beating rams from the stocks of the most celebrated breeders in Europe.—*Dumfries' Courier, April* 21st, 1057.

CURE FOR INFLAMATORY RHEUMATISM.

A correspondent of one of our agricultural exchanges, who has suffered from this terrible affliction, gives the following as a certain cure. It looks to be worth trying:

First rid the system of *costiveness*. This plague is frequently the *origin*, and almost always an attendant upon inflamatory rheumatism. It may be easily cured. A thorough vegetable cathartic at the outset, and a pill or two each night following on retiring to rest, will open the bowels: and if the person is kept warm and clean, the disease generally wears off soon. Ayer's, Moffat's, or Dr. S. S. Fitch's Cathartic Pills—the last best—are good for such a cure.

Should the rheumatism seem disposed to hang on somewhat after the costiveness is removed, it may be summarily ejected in the following manner: Set the patient in a low chair, and cover him—chair and all—closely, with a good thick bed quilt, leaving a breathing place for the mouth and nostrils. Under the chair place a spider or iron basin filled with *rum*, which set on fire. If it make too great a heat for the patient to bear, check it by sliding a board over it. Keep it a-going till the patient is thoroughly heated and as wet as a drowned rat. The bed, by the side of which this *bath* is taken, should meantime be thoroughly warmed, and the patient removed to it from the chair, well covered up and tucked in, and allowed to swelter it out. Inflamatory rheumatism will take its departure, and if the proper precautions are afterwards observed, the places which now know it will know it no more forever.

Keep the body *warm always* by comfortable clothing—flannel next the skin—keep clean by bathing—avoid chills and damps, and wet or cold feet. Above all, keep off the great enemy—*costiveness*. Should it threaten, take one, two, or three pills at night on retiring—just enough to loosen, not to physic. Eat plenty of good wholesome food—not knick-knacks, and you will come out all right. I had a most horrible experience with inflammatory rheumatism, many times should have died of sheer agony, had not my pains been allayed by morphine. After suffering most awfully, losing much valuable time, and been dosed and drugged, I was finally *cured* by the above simple and inexpensive method; and for seven years havn't had a *touch* of the disorder, and don't fear I ever shall.

P. S. The spirit bath should *never* be used till some days after all costiveness is removed.

PRESERVING POTATOES.

At a recent meeting of the New York Farmer's Club, a Mr. Starbuck described a machine for making potatoe meal. He said "that a machine capable of reducing 200 bushels per day, will cost $1,200, and that the operation is very simple, and that the expense will not exceed seven cents a bushel. The tubers must be carefully assorted and washed before boiling or steaming. They are cooked without peeling, and then put in a hopper, from which they are sent up on a disc, when the potato is crushed, and the skins combed out. The inside falls upon a table, where it is operated upon by heated air. Apples can be dried by the same procees, and so can several other vegetables. He is sanguine that the plan will cheapen food for city consumption, for it will enable growers at a great distance to preserve and send their crops to market. It requires about three cords of wood to prepare 200 bushels of potatoes.

At the same meeting, the following remarks were made on the subject of preserving, cooking, &c.:

"Solon Robinson,—If possible, a potato never should see light. It should be taken direct from the dark cell where it grows to a dark cell for preservation, and if possible, always kept in the dark and at an even temperature until it is taken out to put in the pot. I have often noticed in dark cellars that the potatoes that kept the best, are those under the spout where they were dumped from the cart, and partly covered with dirt.

The Chairman confirmed the view advanced, that potatoes are preserved best in the dark.

Dr. Smith,—I have often observed in Lancashire, England, with what assiduous care the cottagers—many of whom are very dependent upon their little crop of potatoes—cover the potatoes as soon as possible after they are dug. It is not to keep them from freezing, but to keep them from the light, as these people well know that nothing is more injurious, particularly if the sun is shining hot upon them when taken from the ground.

Prof. Nash.—The common practice of farmers leaving potatoes on the ground in a hot October sun, is one of the most injurious things that could be done to the crop. Some of them are half cooked, and all are injured by light and heat.

Mr. Bergen said he had often been astonished at the quantity of potatoes consumed in this city. Why, Sir, the more we raise, the more we may, at increased profit. We raise now fifty times as many as formerly, and get three or four times as much per bushel. There must certainly be something very valuable in potatoes as food, or there would not be so many eaten.

Solon Robinson,—No, Sir, that is not the reason potatoes are so largely consumed in this city. I will tell you why the people eat so many potatoes, at a time too, when they are the dearest of all kinds of food. It is because nine-tenths of those we employ to cook our food don't know how to cook anything else but potatoes; and that particular being that the proverb says sends us cooks, must be pretty well aware that they don't know how to cook them, and consequently we commit a deal of sin in finding fault with the potatoes, when the principal fault is chargeable to the stupid dolts who have had the care and consequent spoiling of these valuable fruits of the earth. I certainly should look upon it as a great boon, if we could once more see the day that we could sit down to a meal of mealy potatoes.

Dr. Smith,—Do people ever think of the immense waste of potatoes as they are treated in this city? Let me tell you how potatoes are cooked in Lancashire. They are peeled first and boiled gently till nearly soft, and then the water is poured off and all the steam evaporated, when they are poured into a dish and a few slices of bacon laid on top and brought hot to the table, where they are eaten with a relish, and for good reason—they are truly good. Such people do not eat much bread. The potatoes are so dry and mealy that they are an excellent substitute for bread, and very unlike the miserable waxy things we have here."

NEW METHOD OF MAKING BUTTER.

One of the butter makers of New York State, to whom was awarded a prize by the State Society last fall, thus describes his method. It may suggest hints worth adoption:—

This butter is made by my improved method, whereby every drop of water or buttermilk is taken out of it by *solar evaporation.* In this process I claim to have so perfected butter-making that butter may be kept sweet several years, without the rancid odor caused by the decomposition of water and buttermilk that pervades most of the butter at the present time. The following is an outline of my improved process:

Frstly—In churning the cream, enough ice should be put into it occasionally to make the butter come in crumbs; pour off the buttermilk and wash the butter several times in soft ice water, till there ceases to be any milky appearance; during the process of washing, should there be a solid lump of butter large enough to contain a cell of fluid, that lump should be crushed, while in the water, and broken into a corresponding size of the other crumbs.

Lastly—Wash it in brine made of rock salt, saltpeter, *soft* water and ice; skim the crumbs out of the brine with a skimmer; drain each skimmer-full well; spread the butter on zinc plates—(in cool weather wooden tables will do instead of the zinc;) in very hot weather these zinc plates should be set on ice water, while the crumbs are spread out thinly; place the butter in (the middle of) a milk room; open all the windows, and a current of air passing over it, will evaporate all the moisture in less than an hour, in warm weather, if the room is suitably ventilated; care should be taken not to have any other moisture in the room, like water on the floor, or wet dairy furniture in the room. When the butter is perfectly dry, pack it down immediately, and let there be no more working of it than is necessary to pack it solid in a jar or tub. This will secure, unbroken the crystals of butter, and its original flavour. As near as I can ascertain, there will not exceed one ounce of salt to ten pounds of butter, by the process of brine salting. But as a general thing, butter made for hospitals, rich gouty invalids and sick persons, the salting process should be omitted altogether. Butter made in this way, (without salt,) if sealed in cans or jars and placed in an atmosphere or chamber of bin-oxide of nitrogen, I believe will keep any number of years.

I have also an improved butter-tub, which I hoped to be able to present to you, but sickness has prevented me this year. It is a butter tub (turned) in halves, opening in the middle, like a match box, (circular tenon,) made of ordinary porous wood—kiln dried, then placed in an air chamber, and after exhausting the air inject a solution of stone, which, by atmospheric pressure, will penetrate the pores of the wood, and becomes petrified and coated with stone, without increasing the weight of the package over 6 or 8 per cent.; the tub will be air tight, and possess all the qualities of a stone jar.

NEW TURKEY.

The Queen has presented to the Zoological Society a large and brilliantly colored species of turkey (Meleagris ocellata) which has been known for many years to inhabit the vicinity of the Lake Peten, near the confines of the provinces of Vera Paz, and Belize, Central America; but so rare is even the skin of the bird in this country, that a stuffed specimen is valued by dealers at about forty guineas. The late Earl of Derby, who was most zealous in his endeavours to improve the breeds of birds likely to be serviceable for food, went to the expense of sending collectors out to Honduras, almost solely with the view of procuring living specimens of this turkey for his aviary at Knowsley. For nearly twenty years his lordship looked forward to the gratification of possessing the species, but all atrempts to bring it alive to England failed. This, we are happy to announce, has at length been accomplished by Mr. Skinner, the well known collector of orchideous plants of Guatemala, assisted by Captain Wilson, of West India steam packet Parana. Mrs. Stevenson, the lady of H. M. Superintendent of Belize, possessed a fine cock ocellated turkey and two hens, which she was desirous of presenting to the Queen, and Mr. Skinner undertook the delicate task of bringing them to England. They are taller, thinner, and more erect than the common turkey, with the plumage marked with irridescent peacock-like eyes, the legs being pink, and the head of a peculiar soft gray-blue, crested with clear, bright orange warts. They are to be seen at the Society's Gardens, in the Regent's park.—*Timbs' "Year-book of Facts,"* 1857, p. 221.

TOMATOES.

A correspondent of the *Genesee Farmer* gives his mode of growing tomatoes. He forwards his plants in a hot bed or green house, and grows them in pots until they are a foot or a foot and a half high, turning them out about the second week in May. He plants them three feet apart in rows. When planted he drives down a few stakes, six or eight feet apart, leaving them about four feet high the whole length of the rows, and nailing a strip of wood all along the tops, and tying one or two lower down the stakes, to make a trellis. The ground should dug deep and made rich with manure, and a spoonful of guano mixed with the soil around each root. We quote :—

"When the have grown sufficiently long to tie to the trellis, I select two or three of the longest shoots and tie them loosely to the trellis cutting away all other small laterals which may grow on the main branches. I let these main branches grow until they have come in flower and set the first bunch of fruit; then I pinch out the top, one joint above the fruit, leaving the leaf entire. I then allow it to go on again until it has flowered and set another bunch of fruit, when the top is pinched out one leaf above the bunch, the same as the first, and so on of all the rest, taking care to cut all the laterals which may grow on the main branches down to the axles of the leaves, as often as they are produced, but leaving the leaves entire. If any one will take this little extra trouble, he will be amply repaid and absolutely astonished at the immense clusters of fine large tomatoes he will have. If planted in a favourable situation, they will ripen at least as early as those grown in any other way out of doors, and frequently three days or a week earlier. When ripe they will hang longer on the vines without decaying. The situation can hardly be too sunny. Deep, light, loamy soil suits them best."

LABELS FOR FRUIT TREES.

The following simple but ingenious mode of preserving labels, may be worth trying by those cultivating several varieties of fruits :—

"Purchase by the gross small vials, short-necked, and about two inches long; write the number of trees, name of varieties, and direction of trees in the row, on a piece of parchment rolled round a small piece of wood, or a piece of shingle written on with a black lead pencil. Cut with four sides in the following manner: on one side write Twenty; next side, Flemish, next, Beauty, next, South—which reads thus; 20 Flemish Beauty, South to next label. The pieces of shingle must be cut the length and width of the vial, and then shove them in through the neck of the vial, and cork tightly and cut the cork off even with the glass mouth, and putty the whole well and smoothly over. Suspend them from a limb of the tree with copper wire twisted round the neck of the vial and the limb of the tree. You will then have a label which will give you no trouble in future to find the varieties of fruit you have in cultivation. If a tree dies in the row, you can easily replace it by finding the name of variety from the label contained in the vial on the first tree in the row, and thus the number will always continue complete."

The Dioscorea in Germany.—Messrs. Editors,—In regard to the *dioscorea batatas* and its success here, I have made inquiries in various places, and always with the same results. Prof. Smith of Heidelberg, Prof. of Botany and director of the Botanical Gardens, says that the experiments in both the scientific and horticultural departments of the gardens, produced no such brilliant results as those that were heralded in France, in fact nothing approaching them. He was inclined to think that the enthusiasm which generally attends new discoveries in France, if it had not magnified the *Dioscorea*, had magnified its uses. He thought it would not prove of any considerable practical value in Germany.

Prof. Von Martius of this city, one of the most celebrated botanists of Europe, tells me of the same want of success in the botanical gardens here, and is equally skeptical of the great practical value of the new stranger.

As far as I have heard, this has been the case also in other botanical gardens of Germany.—*Munich Bavaria.—Cor. Country Gentleman.*

PULVERIZE THE SOIL.

Voelcker, Professor of agricultural chemistry to the West of England Society, Exeter, thus writes as to pulverization of soil:—

"The efficacy of a manure or the practical effect of which it is capable, is greatly influenced by the mechanical condition of the land. Land varies very much in this respect, and, as a matter of course, the same manures act differently on land of different descriptions. I may illustrate this by referring to experiments I have made on land attached to Cirencester College, where I used superphosphate on a piece of ground which did not yield so much as another piece where none had been used; but I took the precaution to try the manure in a third place, and here the yield was three times as much as on that which had not been manured. The fact is that on clay land superphosphates are of no use unless the land is properly pulverised. Some farmers imagine that by using in the land the best artificial manures, they do not require so much labour, or any additional labour. There can be no greater mistake; for the best artificial manures often fail, more or less, entirely for want of proper pulverisation of the soil. It is of the greatest consequence that the land on which artificial manures are used should be in a high state of subdivision. Artificials can only be used with advantage by farmers who have improved agricultural implements and methods of tillage, and paid a great deal more of attention to the mechanical condition of the land than many farmers of the old school. If a farmer has not sufficient skill to manage a farm on improved principles throughout, the mere use of artificials will help him comparatively little, and he will perhaps do better to stick to farm-yard manure under such circumstances."

Tobacco Dust for Insects.—It is not a little singular that the very plant the genus *Homo* should take such a special liking to, is also *the* plant to destroy a vast number of insects. Yet so it is, and it is quite probable that tobacco alone, in one form or another, is sufficient to destroy a large quantity of the insects injurious to vegetation, if it can only be well applied. For our present purpose it requires to be dust, which can be got at the tobacconist's for a dollar or two per barrel, if applied for some time before the season of wanting it. Generally speaking, it is a good deal too coarse, and therein consists its failure as often applied. What is wanting is some kind of a mill to reduce it to powder, but in the absence of this a substitute consists in drying it quite crisp, and pounding or rubbing it small. A sieve is then needed, of a very fine mesh, to apply it to the plants, choosing the morning for doing it, putting no more on than is necessary to lay a fine dust on the foliage. While this is on, no fly will attack them. But as a strong wind or shower will scatter it all off, the dose must be repeated until the plants are out of danger. Herein consists the advantage of using just enough for the purpose, as the continued application in quantity is injurious to the plants. While in the seed bed, the trouble of application is not much, and we hesitate not to say, that any person can secure plants by following the above method.

An Indian Corn Harvester.—A model of a machine that has been tested, for cutting Indian corn, was exhibited by Mr. Coates, of Philadelphia, by which eight acres a day can be cut and left in gavels, by a man and two horses. The machine appears as well contrived for the purpose for which it is designed as the mowers or reapers for their respective purposes. It will greatly facilitate the business of raising corn at the West, and lighten a branch of the labor that requires men with strong arms.

The American Elk Domesticated.—Mr. Lorenzo Stratton, of Little Valley, has been experimenting, for a few years past, with a view to test the practicability of domesticating the Elk; and for this purpose enclosed a tract of very hilly land, well wooded, for ranging and browsing. His animals are so amiable that he has driven several of them to the three last Fairs of Cattaraugus county, without difficulty, where they attracted great attenton. The success attending Mr. Stratton's experiments, thus far, certainly argues well for more extended efforts.

REAPERS AND MOWERS.

Notwithstanding defects of construction, badness of material, ignorance of workmen, and the difficulties of stumps, stones and water-furrows, the REAPER and the MOWER have established themselves as permanent "institutions." No farmer who cultivates over 75 acres, and whose fields present a suitable surface, can afford to do without one of these machines at the present price of labour.

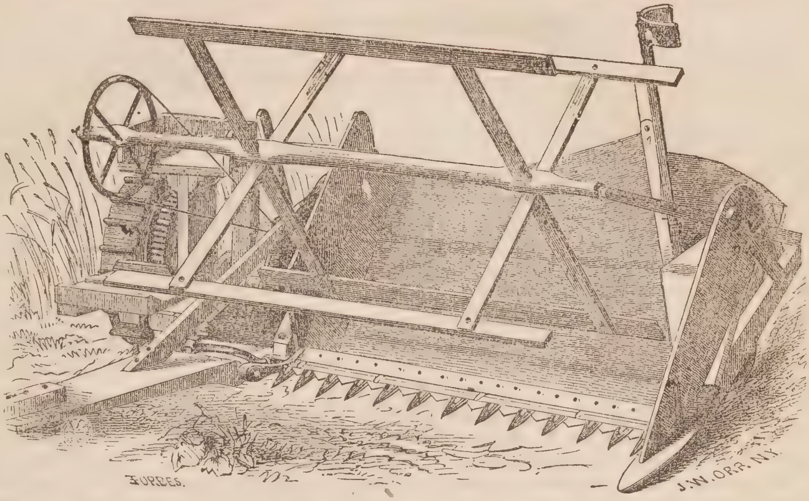
We are often asked by correspondents and others, what kind of machine *is best?* There are now so many varieties and so many "improvements," that we find it very difficult to give an opinion. The *best* in form, may, by imperfect construction, be made inferior to the worst. In truth we have seen machines with all the "latest improvements," that, for any other purpose than to *look at,* were far inferior to Hussey's machine of ten years ago.

The *first* point to make sure of, is that the machine be well made; and hence we would recommend the reader to apply to an established manufacturer. Many persons have undertaken to construct these machines without any experience or knowledge, and their first year's work has invariably failed to give satisfaction. A reaper is a complicated machine, and requires both ingenuity and practical skill to adjust all its parts, so that they will work smoothly and endure the strain of the harvest field.

The tendency of improvement for the last two or three years, has been towards *combination* or duality. It seems to be thought that if the same machine can be made to *reap* and *mow,* and perform both operations well, there will be both economy and convenience in using it. We have watched the experiments in this direction with a good deal of interest, and the conclusion we have arrived at is this: upon a large farm, say 100 acres and upwards under cultivation, we would employ two machines, a reaper and a mower separately. On a smaller farm, growing from 15 to 20 acres of wheat annually, a good combined machine on the principle of Manny's, will answer every purpose. There is nothing in the cutting apparatus that disqualifies the mower for the wheat field; a slow motion of the knife can be permitted in the latter case, which saves wear and tear. But the chief point of difference is the breadth of the cut. It is found impossible to cut more than 5 or 5½ feet of heavy grass without exposing the machine to a greater strain than is desirable, or overtaxing the team. "Side-draft," the great evil, increases with the length of the cutter-bar, and is at least a third greater in mowing than in reaping. A reaper will cut 7 feet without difficulty. To make a machine that can be *adjusted* to these two breadths of cut, is equivalent to making *two* machines, and therefore the aim has been to find a medium point, not too wide for mowing, and not too narrow for reaping. Messrs. Paterson of Belleville, think they have so far improved Manny's machine, that it will substantially meet both wants.—They certainly "get up" an excllent looking machine. The improvement which enables them to add to the length of the cutter, without increasing the side-draft injuriously, is a wheel under the tongue.

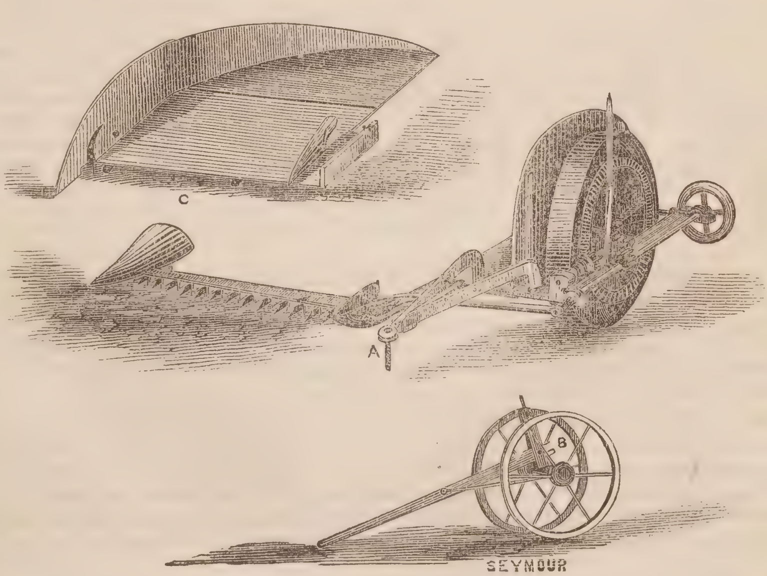
In the following engraving there is an attempt to show the position of the wheel spoken of, but the cut is imperfect. The wheel should be made larger, and in a somewhat different position. It is alleged that this wheel takes the weight of the tongue off the horse's neck, an evil that required to be remedied in this machine—and also lessens the side-draft. The Messrs. Paterson obtained the first prize for their machine at Kingston, and also the prize offered by the President of the Association, for the best labour-saving implement. Their terms will be found on our advertizing page, and we believe they are men who will perform what they promise.

The following cut shows the Manny machine as arranged for reaping.



The cut below represents a machine manufactured by Darling and Atchison, of Thornhill. It is made of iron throughout, and is adapted to both mowing and reaping. The peculiar feature of this new candidate for public favour, is, we believe, the wheels attached to the tongue, on which the front part of the machine rests. There is an adjustable contrivance, by which the cutter-bar is kept in the proper position, while the wheels referred to are passing over obstructions. The platform, which is detached in the engraving, is readily connected with the rear part of the machine, and converts the Mower into a Reaper. This machine is very highly spoken of by several respectable farmers on Yonge Street who have used it. It appears to be very substantially made, but as we have not seen it in operation, we cannot speak more positively as to its performance.

NEW IRON MOWER AND REAPER.



AGRICULTURE IN JAPAN.

Commodore Perry's book on Japan, gives us the following in regard to agriculture in that country:—

"Of animals to assist in culture, the Japanese have the horse, ox, and a large species of buffalo, which they train to draw carts and carry heavy loads on the back. They plough with both the ox and cow. Of milk and butter they make no use. When they cannot use cattle to plough, as on the steep sides cf hills, men are substituted; and sometimes the plough is laid aside, and all the labour in preparing the earth is done by hand, Generally, their soil is rather poor, but by means of the immense labour they bestow upon it, by irrigation, and especially by the use of manures, which they understand well, they make very large crops.

Their chief grain is rice, of which they are said to produce the best in all Asia. They also make barley and wheat. The first is used in feeding cattle; the other is not much valued, and is chiefly used for cakes and soy. This last is made by fermenting, under ground, wheat and a peculiar kind of bean and salt.

Next to rice in importance is the tea-plant. Immense quantities of it are produced, for its use is universal. Besides the plantations devoted to it, the hedges on the farms are all of the tea-plant. Siebold says the finer kinds require great care and skill in their cultivation. The plantations are situated, as far as they conveniently can be, from all other crops, and from human habitations, lest the delicacy of the tea should be impaired by smoke or any other impurity. They manure the plants with dried anchovies, and with the juice pressed out of mustard seed. The harvesting is a process of great nicety. Dr. Siebold thinks that the green and black tea are from the same plant, and differ only in mode of preparation, though others have said the plants differ themselves. Neither, however, is ever dried on copper, both are dried on an iron pan. In horticulture, the Japanese are very skillful, raising radishes weighing from fifty to sixty pounds."

Prolific Wheat.—A correspondent of a New York Journal writing from Paris, gives the following as a singular discovery:—

In 1852, a few grains of wheat were discovered in the tombs of some mummies found in the south of France, supposed to have been two thousand years old. These grains of Egyptian wheat were planted, and produced, to the surprise of every one, 1,200 to 1! The Government took the affair in hand, and consigned the management of it to the farmers of the Government farm at Rambouillet. The result has been most astonishing. Each year the product has been magnified in such an immense proportion over the preceding year, that the Minister of Agriculture is now enabled to distribute over France a large quantity of this wheat to each of the departments gratuitously, with instructions from the Government farm as to the best mode of cultivation. At a late meeting of the Academy of Sciences, the Baron De Menne Ville presented several stocks of this regenerated Egyption wheat which were six feet high and bore each several fine ears. A French lady explained in my hearing the other day, this great multiplying power of the Egyptian wheat by the long rest it had had! It is a great and important discovery for the study of agriculturists.

Compost.—Lime is a substance which it is an error to use with composts in which we have barn-yard manure; it is equally an error to mix lime with any compound rich in ammonia. The tendency of lime in all composts is to promote decomposition, and to waste nitrogen, which escapes by union with hydrogen under the form of ammonia, which is the very treasure of the dung heap, and of most other manuring substances.—*Morton's Practical Agriculture.*

Advice to Young Farmers.—Allow me to say to young farmers especially, let us be studious and inquisitive, as well as laborious; let us be simple and frugal in our habits; avoid needless expenditures; leave fine dress, and fast horses, and showy dwellings to those who really need such things to recommend them. Let us remember that for health and substantial wealth, for rare opportunities for self-improvement, for long life and real independence, the farmer's is the best business in the world.—*Goldthwaite.*

Transplanting Cabbages.—Often when cabbage plants are removed from the beds where they were raised to the garden square, a large portion die, and in a few days the gardener must re-set the square with other plants, and this has occurred so frequently, that most persons have concluded that it is inevitable. Many will doubt when we tell them that it is wholly their fault that every plant does not live. Yet such is the fact. It results from two errors which are easily avoided. One is, that in drawing the plants, the roots are broken, and the other from keeping them out of the ground too long, until it becomes more or less dry. The gardener instead of having the land prepared fully before he takes up the plant, and going through the whole process of drawing and planting in a few minutes, often draws the plants, then lays off the ground, and then drops every plant where it is to be put, before he begins to set the first one, and by the time he gets to the last they are hopelessly injured. Sometimes, we have seen such instances, the plants are lying thus on the ground exposed to the heat of the sun for hours, before they are planted. If they grew afterwards, it would be a very great wonder. The plan which I have pursued for many years seems to be far more reasonable, and certainly more successful in this region. We prepare the land thoroughly first of all, and then lay it off before a plant is drawn from the bed. Some hours before the plants are drawn, water is applied freely to the beds in which the plants are growing, to soften the earth, so that the plants can be taken without breaking the roots. The plants are then carefully drawn, and taken at once to the spots where they are to be planted. There, meantime, a mud puddle has been made, by scraping away the soil, and pouring down water, and mixing the soil therewith until a tolerably thick mud has been formed, into which the root of each plant is immersed. A considdrable portion of mud will adhere to the root, and then as quickly as possible they are planted. The result of this mode of planting is, that a plant rarely ever fails to grow off at once and flourish vigorously, and unless the worms or insects attack the plants, we never have occasion to re-set cabbage plants.

Bath Cheese.—This summer delicacy, readily made in any country, is retailed in London, England, at 2s. 6d. per lb. The following is the recipe:—To one gallon of new milk add two quarts of cold spring water, rennet sufficient to turn it (not hard): take it gently out with the skimming dish and lay it in the vat until full; put a weight upon it, and apply dry cloths for a day or two when turned out on a plate with another over it, and turned occasionally. They are ready in about a fortnight. Sometimes they are kept between vine leaves after they are turned out of the vats, and if so these should be changed twice a day.

How True!—In a recent number of *Hovey's Magazine*, the remark is made that "few complete and thoroughly made gardens and grounds are to be found. We see everywhere in the rapid increase of wealth and population in our suburban towns, fine buildings, erected almost by magic, in the highest style of architectural art, and finished without regard to expense. These costly dwellings, as well as those of more humble pretentions, meet our eyes in every direction, and would command our highest admiration, but for one defect. They are wanting in the elegant surroundings which should belong to every suburban residence; the lawn, the ornamental grounds, the fruit garden, or even the little parteree, have been entirely neglected, and they stand bleak and alone, an ostentatious display of wealth without taste, on the one hand, or the appearance of a depleted purse without the means of doing anything more, on the other."

Profits of Carrot Raising.—As many as sixteen hundred bushels of carrots to the acre, have in some instances, been realized; but such a yield is only to be expected, of course, where the ground is in a very high degree of cultivation, and where great care and attention are bestowed on the crop. But supposing one-half of this large amount can be produced, and allowing the roots to possess a value equal to potatoes, for feeding swine and other domestic animals, the balance is found to be considerably in favour of the former. The labour of tending an acre of carrots or parsnips, is, it is true, considerably greater than that involved in the cultivation of the same extent in potatoes; yet this is not all loss.

Roses, remember, require a rich bed and the richer it is, the finer and greater the number of flowers. Poultry and pigeon dung are good, so is well-rotted cow or horse manure. A thick layer around the stem, slightly covered, will soon show itself in extra fine flowers.

GRAPE CULTURE.

A correspondent asks us to publish "plain, common sense instructions for planting and cultivating grape vines, so that a plain farmer may enjoy the luxury of a bunch of grapes now and then, without paying too dear for the whistle."

We shall try to gratify our correspondent. Although professional gardeners make out that there is a good deal of mystery in grape-culture, we believe the process is simple and easy enough. It merely requires *attention;* we speak of out-door, or garden cultivation. The finest varieties of the grape can only be grown in this country, under *glass,* and therefore are not within the reach of our correspondent on his terms, viz., "without paying too dear for the whistle." There are, however, two or three varieties of very good quality, that with proper care and a little shelter from north winds and winter frosts, will grow vigorously, and ripen their fruit in any part of Upper Canada.

Our nurserymen have many kinds of the grape on their lists for open-air cultivation, but we are not quite sure that the *Isabella* and *Catawba* do not comprise substantially the good qualities of all. The only complaint against them seems to be, they will not in all situations and all seasons at the North, ripen before the frost. The *Clinton* is two weeks earlier than the *Isabella,* but is not near so large or good. The *Catawba* is still later than the *Isabella,* and requires a warm soil and sheltered location to perfect its fruit, and then it is rich and truly delicious.

We are in great want of a new seedling grape equal or superior to the *Isabella* and *Catawba,* and decidedly two or three weeks earlier. We often have such announced, but they do not always prove satisfactory.

Now for the "instructions." We have before us some five or six authorities on the subject, with a variety of plans for *trellis,* training &c. We give below a cut exhibiting a simple mode, which is probably as good as any.

Presuming that you obtain your plants from the nursery, the first step is to prepare your border, and here we shall take the liberty of quoting the directions of a recent writer of high authority on such subjects:—

"The preparation of this vine border is an important process in grape culture in private gardens. It should be made from four to six feet wide, and two to three feet deep, and be composed of a liberal mixture of limestone, or old plaster or mortar, bones, leather-parings, hair, ashes, and strong, well-rotted manure, well mixed with the soil.

A calcareous soil or gravelly loam is best for the grape, and should be well drained and warm. It is somewhat difficult in wet clay lands to raise good grapes, unless the vine border is carefully prepared. Soap-suds and wash from the house is favourable for the grape, and we have known some plants succeed well that were placed immediately under the spout of the sink. For vineyard culture, the nearer the process approximates to the one described above by trenching and enriching, the better.

Every plant should be thoroughly pruned down to two or three leading shoots, and after these cover the trellis or stakes as extensively ai you wish, then the rule in pruning is, every year from December to first of February, fearlessly to cut back all of the last year's growth, so far as to leave only two eyes. It is also desirable, after the grapes are beginning to fill in June, to pinch back the terminal bud of every branch, and thus check its growth aud throw back its sap, to ripen the fruit and mature the wood. By pinchtng back, we mean, to pinch off with the thumb-nail and fore-finger the end of every bearing branch, and we then cut out all the superfluous little shoots and suckers.

The vine is composed the greater part of potash, lime and carbonic acid, and therefore a frequent application of lime and soap-suds is beneficial. It has been asserted that tartaric acid is a valuable specific for the fruit, but of this we have no personal knowledge.

The grape should always be grown in the warmest and most sheltered situation, so that the fruit may ripen well before frost. The south side of a house, or southern slope of a hill-side, should be chosen.

In some places the mildew is troublesome to the grape, but sulphur sprinkled liberally on its first appearance, will usualy check it at once. There is also a kind of snail slug which often destroys the leaves in a few weeks. These can easily be destroyed by showering the vines two or three times with strong soap-suds from the wash,"

We may observe that the above is from an American, not a European authority, and is therefore adapted to this country. We believe we have sufficiently complied with the wishes of our correspondent.

Australian Locusts.—Lieut. Du Cane, R.E., informed the Council of the Royal Agricultural Society at a late meeting, that "a portion of the colony of Western Australia had for some years been regularly visited, at the time the crops were rising, by swarms of locusts, which eat up everything green on the face of the country; attacking and utterly destroying the potato crops, the fruit-trees, vines, and in fact everything; that these locusts appeared to have become regular habitants of the colony, not making a sudden appearance and an equally sudden disappearance, as in some instances; and that they threatened to overspread the whole colony, for rivers did not, as might have been expected, stop their progress." The Council having referred that communication to Mr. Curtis, the highest entomological authorty of this county, for the favour of his opinion, the following communication was received from him:—"I regret that I can give your correspondent no satisfactory information regarding the destruction of locusts. Even if there were any remedies, it is doubtful whether they could be successfully employed, as in all probability the species of locusts in Australia differ very essentially in their economy from those of Europe. In my forthcoming report for the Journal, which I am happy to say is now completed, I have briefly alluded to the locusts of this country; and the only remedy appears to be the employment of poultry during the autumn and winter, which search for and feed upon the eggs of the grasshoppers." The Council voted their best thanks to Mr. Curtis for the favour of this communication.

Pig Measles.—The disease of which we speak, is the result of an animal parasite, which infects all parts of the body, and which is believed to be an imperfect condition of the tape-worm. It is sufficient for us to say, that the disease is to be prevented rather than cured, and that it will not occur except in case of "inattention to the cleanliness of the pig's food and drink."

THE CATTLE MURRAIN.

We publish in another place, a description of the disease or diseases, which have lately proved so destructive to the cattle in certain parts of northern Europe. The subject is one of considerable interest even here, for in the first place, if the plague extends over Europe, it will in all probability reach this country also, and even if we escape its ravages, the price of beef will no doubt be greatly enhanced by the demand for exportation, consequent upon the destruction of cattle in the grazing countries of the old world. Looking at either of these results, we think our farmers should consider whether it would not be a wise policy to pay a little more attention to the increase of their herds. The mania for wheat-growing has proved as fatal to the bovine race in Canada, as the murrain in Lithuania. We are not disposed to recommend the general abandonment of grain culture, with a view to cattle-breeding and grazing. Canadian farmers cannot successfully compete with their more favourably located rivals in the prairie districts of the Great West in the latter business, while they can easily beat those rivals in the former. We only deprecate the preponderance of grain over cattle, in our system of farming, on what, if we were speaking of the public health, we would call sanitory grounds. Ours is an *unhealthy* system of agriculture, as many farmers are beginning to find out. We must keep more stock in our farm-yards, whether it pays directly or not. Even in England, the value of cattle to the farmer, as "machines for manufacturing manure," overrides every other consideration. A recent English writer on this subject says:—

"The farmer fattens cattle not as we citizens in our self-complacent and patronizing moods are apt to imagine, when we read the long figures of arrivals at the markets every week, for the mere sake of feeding us and getting a fortune out of our carniverous propensities, but coupled with a very different object. The modern farmer looks upon a beast as a machine for manufacturing manure. This in some shape he must have.—The corn crops, on which his main prosperity depends, crave it imperatively in some shape, and nothing now known answers so well as the home-made product. Guano, superphosphates, and the thousand-and-one delusive compounds puffed with all the quackery of pseudo-science, are not to be trusted; and until modern chemistry produces something better than has yet been forthcoming, the farmer must trust to himself and his beasts."

If this be so in England where so many artificial manures are available; where the grazing season is so much longer; where cattle command so high a price for breeding purposes, with how much more truth may it be said in our case?

The English Government have taken precautions to prevent the introduction of the cattle plague into the British Isles. An order in Council was published on April 2nd., prohibiting the importation of cattle, or of horns, hoofs, or skins, from those territories of Russia, Prussia, or Mecklenburg Schwerin, which lie on the Gulf of Finland, or between the gulf and the city of Lubeck. It cannot be said that this prohibition is too stringent. Certainly an order which limits the supply of human food is a strong measure, but the case admitted neither of compromise nor delay. It was necessary to exclude rigidly and at once anything which could bring on the country so terrible a calamity as a mortality among the animals used for food. The disease which necessitated these precautions has ravaged Silesia, Mecklenburg, and

part of Holstein for two or three years, and has lately assumed a type so deadly as to rouse the apprehension of the principal Governments of the Continent. The Governments of France, Prussia, and some of the smaller German States have already made regulations for the exclusion of the tainted cattle, or any part of their carcases. The insular position of Great Britain gives a greater chance of immunity, but does not free them from the necessity of taking some precautions.

The Earl of Clarendon has sent to the Royal Agricultural Society, the following communication on the subject:—

"Foreign Office, April 29th, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the Council of the Royal Agricultural Society, a copy of a despatch from her Majesty's Minister at St. Petersburgh, relative to the cattle disease.—I am, Sir, your most obedient hunble servant,
E. HAMMOND.

J. Hudson, Esq.

St. Petersburgh, April 18, 1857.

My Lord,—With reference to your lordship's despatch, No. 235, of the 8th inst., enclosing the Order in Council prohibiting the importation of cattle from Russian ports in the Baltic and Gulf of Finland, on account of the apprehended murrain, I have the honour to state that, as far as I can learn, the infectious disorder which prevails in this country amongst cattle, is confined to Lithuania and the provinces bordering upon Poland. I am assured that it has never appeared in Finland, or in the northern and eastern parts of European Russia. I am, of course, unable to vouch for the accuracy of this information, but I certainly have never heard any mention of a murrain except in the provinces I have mentioned. A considerable quantity of hides which were about to be shipped to England will, I am told, be stopped by the prohibition. I have communicated a copy of the *Gazette* to M. Tolstoy, and have requested that steps may be taken to make the prohibition publicly known.—I have, &c.,
WODEHOUSE."

The Earl of Clarendon.

From this it would appear that the extent of the calamity has been exaggerated, but the Government will probably not relax its order upon the mere want of information thus confessed by its Minister. Agents have been sent to the countries where the disease is said to prevail, to ascertain the truth, and to report it officially. The London *Times* very justly remarks:—

"This disease, no doubt, has its cause and its cure, like those of human kind. The words 'infectious' and 'contagious,' are very loosely used. It is probable that this malady is propagated chiefly where the state of the animals is generally unhealthy, or where, through want of proper care, or through insufficient food or shelter, their physical condition is weak. We may further assume that a disease of this sort is epidemic, and likely to break out in more than one place, without any intercommunication. Both these considerations point to the necessity of increased care in the treatment of cattle at home. It is not impossible that the disease arises from natural causes, and cannot be averted solely by quarantine regulations. No doubt, infection from abroad would cause it to assume a still more deadly form, but yet the seed may be already sown among us, and favourable circumstances may cause it to take the dimensions of a great national calamity. Our agriculturists and breeders should therefore take their precautions in time. While Government is watching the out-posts, they should do all that science can suggest to stop the progress of the disease, or remove the causes which may lead to its appearance. If the crowding of cattle sheds and the want of ventilation and cleanliness have a tendency to encourage the epidemic, as certainly seems likely enough, no time should be lost in remedying defects which may be productive of such incalculable evil."

APPLES.—I had occasion to overhaul some apples the other day. They were picked in the same orchard, and on the came day, and were put away the same day; and some in flour barrels and some in lime barrels. Those in the flour barrels were much decayed. while those in the lime barrels were sound, and but very few showed any signs of decay, The apples were of the same variety.

This observation may prove of service.—*New Jersey Farmer.*

Dairy Utensils in the Cheese Manufacture for 25 Cows.—Three milking pails, to hold 5 gallons; cheese tub, 55 gallons; sieve ladder; straining cloth placed over this and sieve in the ladder over centre of tub; a triple knife, or wire sieve, or beater to break the curd when first coagulated; bowl and shallow wooden dish for lading whey out of cheese tub; sieve to strain whey through; vats to receive the whey to stand in till it is skimmed and goes out to the pigs. These vats are best made of lead or tin, as when scoured they are more easily kept sweet from the sourness of the whey. Cheese vats, turned, of Elm timber; board to place on top of vats when in the cheese press. The first press to be about 3 cwt. for eight cheeses to make 1 cwt. It is not well to press too heavily at first, as the fat is thereby pressed from the cheese when the whey is warm and runs freely. After the first 24 hours leverage presses are very good. Cheese cloths placed in the vats before the curd is put in them: these cloths of a coarse canvas material made for the purpose—they should be changed twice in the 24 hours, once a day afterwards, when the cheese must be rubbed with salt, and kept in the presses five or six days, or longer if it is thick cheese. A bench for salting cheese on, and sharp knife to pare off any uneven edges, though they ought not to appear in well filled vats on well made cheese. Pans to hold the milk to stand in before skimming the cream for butter may be either of tin, glass or brown line ware lined with white ware; these last seem the best as least expensive, as from their thickness the milk cools more gradually in these than in glass or tin, those to hold 2 gallons and 6 quarts being put to stand in each, to be skimmed once in 12 or 24 hours, according to various plans. As to churns, the American for a small dairy is as good as any, the barrel churn for a large one.

Kitchen Garden.—Weed artichokes; clean asparagus beds; plant basil; continue to plant beans for successions; thin beets, &c.; plant borecole, broccoli, cabbage and capsicum; thin early cabbage, and earth up early celery. If you have cucumbers in pots in frames, plant them out; sow endive; thin leeks; transplant lettuce; sow mint, and thin early parsnips; sow peas, and attend to those previously sown.

Melons raised in hot-beds should go out early this month, as well as Lima beans, early squashes, tomatoes, egg-plants and other culinaries started in hot beds; sow white radishes; plant sage; thin salsify; plant out savoys; gather seeds as ripe; sow spinach, and thin former sowings; keep ground well tilled between rows throughout the garden: attend to thinning generally; plant out tomatoes; sow turnip cabbage; keep down the weeds. All the early lettuce and radish ground being now cleared off, may be used for beets and carrots which will give better late crops than if planted earlier.

Dust pulverized quick lime, unleached ashes, tobacco dust, &c., over plants annoyed or subject to be annoyed by insects. Plant okra; cut and dry herbs in flower, selecting for this purpose a clear dry day; water culiflowers, and break down the leaves over those near maturity, to prevent their buttoning too early.

Cream Cheese.—Take a quart of cream, or, if not desired very rich, add thereto one pint of new milk; warm it in hot water till it is about the heat of milk from the cow, add a small quantity of rennet (a table spoonful is sufficient), let it stand till thick, then break it slightly with a spoon, and place it in the frame in which you have previously put a fine canvass cloth; press it slightly with a weight; let it stand a few hours, then put a finer cloth in the frame; a little powdered salt may be put over the cloth. It will be fit for use in a day or two.

To Secure Lateral Branches.—When a tree has been stripped of its branches, you may wish to restore them. If so, take this mode, which has been used with success:—Cut out a large piece of bark on the side on which you wish the new limbs to grow; do not cut out the bark quite to the wood; in due time, the space will be covered with a thin, tender bark; into this tender bark, you may insert buds, just as in a small twig in a nursery; thus the bud will grow to a branch, and the symmetry of the tree may be improved, and the fruit may be changed, too.

Female Purity.—All the influence which women enjoy in society—their right to the exercise of that maternal care which forms the first and most indelible species of education—the wholesome restraint which they possess over the passions of mankind—their power of protecting us when young, and cheering us when old—depends so entirely upon their personal purity, and the charm which it casts around them, that to insinuate a doubt of its real value is wilfully to remove the broadest corner-stone on which civil society rest, with all its benefits and all its comforts.

CULTURE OF THE TURNIP.

The following remarks on the varieties of the turnip, and the best modes of cultivating, are from an American exchange, and may be useful to those who are not fully acquainted with the subject:—

"It is scarcely practicable to carry on a correct and profitable system of husbandry, without the introduction of green and root crops; among which turnips and potatoes deserve special attention, as being among the most valuable products of the farm: not only as a suitable change in the rotation, but also highly esteemed for their usefulness, in cattle feeding, and for domestic purposes.

Turnips are a most important root for the fattening of cattle; although by some, the turnip crop is considered merely as a catch crop, (the meaning of which is, that the crop is produced upon land that would otherwise have remained a naked fallow through the season, in order that the soil might be properly tilled by repeated ploughings, freed from root weeds, manured, and prepared for the succeeding grain crop,) it therefore may be considered an economical crop, as the land during the cultivation and growth of the turnips, receives the requisite preparation for the grain crop which is to follow, with the exception of a single ploughing after the turnips are removed from the land.

Turnips may be divided into three general classes; the round or globe shaped, the depressrd or Norfolk, and the fusiform or oblong. They are likewise sometimes distinguished by their colour, as the white, the yellow, and the purple-topped: but these classes have, however, many intermediate varieties that have been obtained by crossing the sorts. The white, with the green and purple-topped, are early kinds, and grow well on a lightish soil, and produce a crop with a less quantity of manure than the others. These kinds, do not, however, last so long as the others, as they are more apt to run to seed, or to be injured by the frosts. The Aberdeen yellow is a kind between the globe and the ruta baga or Swedish turnip, and is much hardier than the globe; it is also later in coming to maturity, is better able to withstand the frost, and generally yields a good crop. The Swedish turnip is however, much the hardiest, and will resist the frost to a far greater extent than any other variety, and will retain its juices to a much later period in the spring. The Swedish turnip, however, requires a full dressing of manure to produce a good crop. This species of turnip will, while the plants are young, bear transplanting much better than the others, consequently any blank spaces in the crop can be filled up, provided they are transplanted as early in the hoeing season as practicable.

The time of sowing the different varieties varies; much depending on the season and climate; those that are most solid and nutritive require the longest time to grow, and should therefore be sown soonest; and on this account the Swedish should be sown pretty early.

The quantity of seed should always be liberal, for by sowing too little the crop sometimes fails; for when the plants are attacked by insects, and are thin on the ground the crop will be destroyed; whereas if the plants are numerous, they grow quicker, and are more likely to withstand the ravages of insects, or a droughty season.

Turnips being looked upon as a complete fallow crop, they are on this account introduced into that part of the rotation which closes one course, and commences another.—The land for turnips ought to be well cultivated, with sufficient ploughings and harrowings to bring it to a fine tilth, and made perfectly free from root weeds. For drill sowing, the ground is then formed into ridgelets by the plough, and the manure spread evenly along in the rows. Well rotted dung is of the greatest importance, and in quantity from ten to twenty tons per acre, as the state of the land and the variety of the turnip may require. No crop is better adapted than turnips, for any other description of manure than farm-yard dung; as ashes, rape dust, oil cake, bone dust, and numerous other manures, are calculated to produce crops of this vegetable. The seed should be drill sown, and be deposited as near the manure as possible, and it is only by drill sowing that this can be attained, It is highly important in dry weather, that the preparing the land, applying the manure, earthing it in, and sowing the seed should follow each

other as rapidly as possible, so that the seed may have the benefit of all the available moisture.

After the plants are up and in rough leaf near two inches high, the scarifier or horse-hoe should be at work, to destroy the weeds between the drill rows pretty close to the plants; after which the hand hoeing and thinning should immediately proceed, leaving the plants from eight to ten inches apart in the rows. This distance is generally sufficient for allowing the turnips to grow to a useful size. After the plants are pretty well grown, and the thinning, hoeing, and weeding completed, the rows may be lightly earthed up by the double mouldboard plough.

The globe and early kinds of turnips, should be consumed in the early part of the winter, as they do not bear much frost, and if even they are securely stored, they are apt to lose their juices, and to suffer some decay; and when long stored they do not answer for feeding purposes so well as the more hardy kinds.

Turnips that are to be stored must have the tap roots and the leaves cut off, to keep the bulbs clean and prevent overheating. A good root cellar is of course much the best place for stowing turnips during the winter; but where there is no cellar, they may be stored in long heaps of about five feet wide at the bottom, four or five feet high—the top being finished in a sharp ridge; and the whole covered with straw, and outside of that, a thick covering of earth. Or they can be piled up under a shed, and covered up plentifully with straw. The Swedish turnip is superior to the white in nutritive matter, in the proportion of 20 to 13.

Turnips, where they can be successfully cultivated, and where there is convenience for storing them, are unquestionably one of the most profitable products of the farm for fatteniug cattle; and are also of great benefit to store stock. In all cases where turnips are produced on a farm, they are the means of greatly increasing the quantity and improving the quality of the manure made, and thereby assist greatly in keeping the land in a productive condition. Oats or barley generally follow the turnip crop."

PLASTER OF PARIS TO KILL LICE.

The use of Plaster of Paris on a farm is becoming more and more varied. The last new use to which it has been put, is that of destroying lice on cattle. We can say nothing from experience in regard to its use or its efficacy for this purpose.

If it should prove to be sure in its application, it is a valuable discovery. Allen Palmer in a communication to the *Country Gentleman*, last spring says:—Plaster as a remedy for lice on cattle or horses, is among the best I have ever known, used by applying it dry, rubbing it thoroughly into the hair of the animal. I purchased a colt 10 months old that was afflicted with that kind of vermin; I made an application of plaster and kept him away from my other stock about two weeks, and found no more trouble or difficulty with the insects.

In numerous cases, it has been used ty destroy this pest to beasts, and I have never known the necessity of a second application.

Cucumber Bugs.—Dr. Heckerman, writes,—"Most gardeners are very much annoyed by these bugs, which prey alike upon the cucumber, melon, pumpkin and squash—the latter being its favorite. Various plans have been devised for their protection, such as soot, &c. A method which I have practised with nearly entire success, is to form a mixture of equal parts of finely ground black pepper and wheat flour, and dust the plants while the dew is upon them with this mixture, using an ordinary flour or pepper box. It is a fact generally known, tha black pepper is so obnoxious to most insects, that few will approach or stay in its presence. The object of the flour is to combine with the pepper, and with the water or dew to form a paste, which will adhere to the leaves for many days unless washed off by heavy rains: in which case the application should be renewed.

How to Cook Rhubarb.—It is a common error in cooking rhubarb to peel it. This should never be done as the skin contains the aroma of the plant, and is not at all fibrous but cooks as readily and becomes pulpy. We have derived this information from a French cook of note, experience and skill. The same cook tells us that asparagus should be cut into pieces about three quarters of an inch long before cooking. It should be boiled with a nice piece of salt porkand served up in the same manner as peas.

A Remedy for the Bark Louse.—A certain remedy for the bark louse, is using the common sal soda, which may be had at any druggist's for 3 cents per lb. Dissolve it in water, allowing one pound of sal soda to each gallon of water. When well dissolved, apply it with an old whitewash brush to the limbs and trunk of the tree. It destroys all insects which harbor under the loose bark, and effectually kills the bark louse. I use it in spring and autumn when the trees are not in leaf, and its effects are astonishing in giving new vitality to the trees.

The New Gem.—Two celebrated Chemists, Messrs. Wholer and Deville, have discovered a process by which *Boron* may be crystalized, forming gems equal in hardness and refractive power to the diamond, and of various colours. *Boron*, the base of the common *borax* of commerce, was discovered by Sir H. Davy in 1807, who separated it by the galvanic battery, as a dark olive coloured substance, without taste or smell, and like *Silicon* a non conductor of electricity. Its characteristics placed it midway between *Carbon* and *Silicon*, with the distinction, that it was long supposed to be uncrystilisible. Later investigations have, however, removed this disagreement, and the three substances are now found to assimilate to character. Crystallised *Boron* may truly be called the *diamond of Boron*, as is the true diamond that of Carbon. It is obtained in the form of transparent crystals, varying in colour from a yellow to a red, but this colour appears to have been accidental and due to impurities in the material operated on. It is believed that greater care in purification will lead to the production of colourless crystals. Crystalised *Boron* possesses a lustre and refractive power, which exceed those of all other substances as the diamond. It is presumed that, when colourless crystals shall be obtained, they will present exactly the appearancce of diamonds, in respect of their refractive and reflective powers. They are equal in hardness, scratching the corundum, or oriental ruby: and applied in powder, polishing the surface of the hardest gems. The laboratory of the chemist will henceforth furnish gems equal to those formed by nature, either for use in the arts or for articles of decoration. So perfect are the *Boron* gems, that nothing short of their destruction by chemical means will enable the best judges to distinguish them from those they simulate. And the probability is, that this discovery will greatly affect the value of precious stones. The ease with which the colour of the product is affected by accidental impurity, will enable the manufacturers to make stones of any desired tint. The discoverers have presented specimens to the French Academy of Sciences.

Sex of Eggs.—The round plump eggs will hatch hens, and slender ones cocks, invariably. So says an exchange.

New Guano.—Letter from the English Consul at Puerto Rico, to Lord Clarendon:

"Puerto Rico, Feb. 16, 1857.

"My Lord,—In the Island of Mona, situated about fifty miles nearly due west of the town of Mayaguez, at the western extremity of the Island of Puerto Rico, some deposits of guano have been discovered, and according to the report of the surveyors appointed by this government to inspect the deposits, a copy of which I have obtained, the guano is situated in three caves, and the quantity is said to amount to 23,525 tons. I regret that I am unable to state the proportion per cent. of amonia contained in this guano, as I have not yet succeeded in procuring a sample, nor have any steps been taken by the government to ascertain this fact, upon which the value of the discovery depends, the samples brought by the surveyors having been forwarded to Madrid. A tolerably correct estimate of its properties, however, may be formed from the circumstance that a cargo taken by the master of a merchant vessel, under the flag of the United States, who was the discoverer of these deposits, realised at New York the sum of twenty dollars, or £4 2s. sterling, per ton. The governor of Puerto Rico is awaiting instructions from the authorities at Madrid as to the manner in which he is to dispose of the guano which in the meanwhile has been protected against further depredations. I have, &c.

(Signed) "Lennox Hunt."

A Valuable Recipe.—Take one pound of sal soda and half a pound of unslacked lime, put them in a gallon of water over the fire, and boil about twenty minutes; let it stand till cool, then drain off and put it in a strong jug or jar. Soak your dirty clothes over night, or until they are well wet through, then wring them out and rub on plenty of soap, and in one boiler of clothes, well covered with water, add one tablespoonful of the washing fluid. Boil half an hour briskly, then wash them thoroughly through one suds, and rinse them well through two waters, and your clothes will look better than the old way of washing twice before boiling. This is an invaluable recipe and we want every poor tired woman to try it.

Guano Discoveries.—Mr. Arthur Benson, who arrived at New York in steamer *Illinois*, went out as agent of the American Guano Company of that city. He visited Jarvis Island, Howland's Islands, and New Nantucket, in the Pacific Ocean, and has brought home with him four tons of the guano as a sample. The supply of guano upon these islands is almost inexhaustible, and of a quality not inferior to that of the Chinchas.

Mr. Caird in Parliament.—The agricultural author from Baldoon, better known as the "Times Commissioner," has been returned to Parliament. An English paper thus writes:

"The return of Mr. James Caird for the borough of Dartmouth is a gratifying piece of agricultural intelligence, and as such we have great pleasure in announcing it.—There is many an agricultural subject brought every year under the attention of the House of Commons, and Mr. Caird's presence there will be the guarantee of a more practical discussion of them than they have hitherto received.

Chinese Sugar Cane Seed.—About two hundred and fifty bushels of the Chinese sugar cane have been distributed by the Patent Office this season. It is thought by many that this cane is destined to be cultivated as extensively in the United States as Indian corn, yielding as it does, at the same time, sugar for man, and provinder and grain for beast.

Jury Malady.—It was observed that of the large number of Jurors which were summoned to serve at the trial of Cunningham and Eckel, at New York, on Monday, very many of them were afflicted with lameness, deafness, weak eyes, and other infirmities, the evil effects of which they expatiated upon to the Court under oath.

Strawberry Beds.—They should be kept free from weeds and grass, well watered when in flower and when bearing. To keep the ground always moist and the fruit clean various methods are adopted, the favorite being a mulch of spent tan. It keeps down the weeds, yield a little tannic acid, keeps the ground moist, and preserves the fruit from dirt and sand. No other article will as well accomplish all these desirable purposes.

Summer Management of Sheep.—In the spring, do not turn your sheep into the pasture until it is well up, or until it is ankle high, so as to have something to shade the ground; keep your sheep close, and feed them with hay and grain of some kind—they will eat it well if kept from grass. When put upon pasture, have three or more fields, and change them often, so that their pasture may be sweet. I have known a neighbor lose three hundred sheep out of six hundred in one summer. He divided them into three parts, and put them into three large fields, with no shade except what the fence on south side of each field made. The sheep lay along the fence, and when the nose fly came, the sheep were to be seen running with their noses to the ground, fighting the fly, and eating only just enough to keep life in them. The sheep did not go more than eight or ten rods from the fence, and this was eaten close to the ground when there was plenty of pasture on the north side of the field: as a consequence the sheep poisoned themselves in their own filth. The fly laid its egg in the nostrils of the sheep, and they soon died in great numbers of "worm in the head."

Now, you would ask, how he should he save his sheep? He should have put them all into one field, and forced them to go farther from the fence; and about two or three days after the first shower, he should have changed them to another field. Whenever you see your sheep run with their noses down to the ground, drive them to your farthest pasture; the fly will stay about where the sheep have lain. Keep changing them from field to field, and you will not be troubled with "worm in the head."—*Genesee Farmer.*

THE HOUSEHOLD BABY.

BY GRACE GREENWOOD.

[Grace *alias* Mrs. Lippencott, has lately had a baby, and she is now able to write some practical rhymes from real experience. They are very pretty, and we give them a place for the eyes of those who cannot versify their thoughts.]

What a joy to human eyes
When it laughs or when it cries,
What a treasure, what a prize,
Is the household baby!

Be its temper rising, falling,
Is it cooing, crowing, calling,
'Tis the same dear precious darling,
Is the household baby!

If the scenes without be dreary,
If the hearts within grow weary,
Baby wakes, and all is cheery—
What a rush for baby!

Mamma's eyes grow bright with joy—
Grandpa laughs, and grandpa's boy
Gladly leaves his last new toy
To play bo-peep with baby!

Sisters from their music run,
Maud has caught "the sweet one,"
Grace bends down in girlish fun
To make a horse for baby!

Up to everything we know,
Hands and feet "upon the go,"
What a funny creature though,
Is the household baby!

Bring the puppy and the cat,
Let him pull, and pinch, and pat,
Puss and pup were made for that,
Made to please the baby!

Bring those china vases, mamma,
Get the "mirror and the hammer!"
Anything to make a clamour,
And delight the baby!

Let it clang and clash away,
Let it laugh, and shout, and play,
And be happy while it may,
Dear, mischievous baby!

What a joy to human eyes,
What an angel in disguise,
What a treasure, what a prize,
Is the household baby!

The New Cents.—The directors of the mint, with the approval of the Secretary of the Treasury of the United States, has arranged with the Adams Express Company for transportation of the new cent coin at the cost of the mint, to all points of the Atlantic States accessible by railroad and steamboat, and all other places which can be reached by means of conveyance not incurring unreasonable expense.

Curculio Remedy.—We have ascertained the relative component parts of Mr. Mathews' alleged remedy, which is as follows:—One peck of unslacked lime; six pounds of salt; one barrel of water. This is to be applied with a common garden syringe. If one application is not sufficient, repeat it. A single application is said to have answered with him last year.

This "remedy" has made a good deal of noise among the fruit growers of the Union. Some believe in it, others pronounce it a humbug. It has been a secret until lately.

Uniformity in Weights and Measures.—An attempt is being made in England to bring about this most desirable end—one that grows more and more needful as the world, old and new, becomes more and more linked together. We hope to refer at length to this subject on some future occasion.

Horse's Age, as shown by the Teeth.—We have a fine large engraving, from Geo. H. Dadd, Veterinary Surgeon, Boston, giving the teeth of the horse, from the the temporary teeth of the colt to full age, with brief instructions, affording great facilities for ascertaining the age of the horse; price $1.

ALTERATION OF THE AGRICULTURAL ACT.

A Bill has been introduced and carried through the Upper House, to amend in some respects and to mar in others the present Agricultural Act. We have only had time to give the measure a hasty perusal before going to press, and have not space in the present number to undertake a full analysis. The main feature of the new Bill is the abolition of Counties as a territorial boundary for County Societies, and the substitution of "Electoral Divisions." The *sum* which a "Division" Society may draw from the public chest is reduced to £200. Assuming that a County Society, as they are still to be called, will be organized in each Electoral Division, the whole sum that may be demanded from Government will be somewhat greater than under the present arrangement. To this alteration, which we understand is a suggestion of the Board of Agriculture, we have no objection. It will make some confusion for a year or two, and will then probably work well enough. In the County of York the new system will operate more justly than the old, inasmuch as the large tax-paying population of the three Ridings, including the City of Toronto, could only obtain £250 from the public grant, while several counties, with a smaller population than either of the Ridings, could draw an equal sum. Of course the absurd restriction that was foisted into the former Act, which practically compelled County Societies to hold their exhibitions at the County Town, is to be done away with. The Directors may hold them where they think best. So far we think the amendments are likely to prove beneficial. But there are some new elements introduced into our Agricultural Societies, at the suggestion, we are told, of the learned Minister of Agriculture, that in our opinion will lead to difficulty and confusion, and interfere very seriously with the harmonious working of these associations. Mr. Vankoughnet seems to think that it will be an improvement to make a sort of hotch-potch by mixing up Horticultural Societies, Boards of Trade, Mechanics Institutes, "Boards of Art," &c. &c., with Agricultural Societies. One of his "amendments" alters the constitution of the Provincial Association. The members of these new bodies are made *ex officio* members of the association. It therefore ceases to be an *Agricultural* Association—its original aim—and becomes an affair of Trades, Mechanics, Manufactures, Arts, &c. &c. The association had already extended its arms so as to embrace a large portion of these mechanical productions, to the very serious injury of the agricultural objects for which it was established. What it will become under Mr. Vankoughnet's remodelling remains to be seen. An exhibition of Mechanics, Manufactures, and Works of Art, is a very different affair from a Cattle Show. The two things have no necessary connexion, require different arrangements, and should be held separately. The latter, including the products of the farm, may be exhibited for two or three days; the former should extend to as many weeks. In the United States the two things are kept distinct. Works of art and all kinds of mechanism may be seen at the Fair of the American Institute; the products of agriculture and the implements of the farm are exhibited at the annual show of the State Agricultural Society. If Mr. Vankoughnet had established a Mechanics Fair, and *provided the funds for sustaining* it, we think he would have shown himself a better Minister of Agriculture than by attempting to make the Agricultural Association carry all these things upon its back in addition to its own proper burdens. The same mixing process is attempted in the case of County Societies. The "Presidents of all the Mechanics Institutes, and Boards of Trade *within the County* are made Directors of the Agricultural Society! What are these gentlemen likely to know about Agriculture? Is it likely that their views will harmonize with those of practical farmers? We have no faith in this new *omnium gatherum* system. We must postpone further observations until our next issue. It is proposed that the new Bill shall take effect from 1st of January next.

Prize List.—With this number we send another sheet of "Transactions"—making the 4th—and the Prize List for the next Provincial Fair to be held at Brantford on September 29th and 30th and October 1st and 2nd, 1857.

These sheets have caused a few days delay in the mailing of the *Agriculturist*, but we hope our subscribers will not complain when they know the cause.

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THE COMING SHOW AT BRANTEORD.

We beg to call the attention of our readers to the Premium list of the twelfth Provincial Exhibition, to be held at Brantford on Tuesday, Wednesday, Thursday and Friday, Sept. 29, 30, Oct. 1 and 2d, 1857. The amount of prizes is considerably augmented this year, particularly in the departments of Horses, Cattle and Sheep. The double and treble premiums to imported animals winning first prizes, which for the two last years have proved highly beneficial, are to be continued. The magnificent prize of £50, to which the zealous and indefatigable President of the Association, Geo. Alexander, Esq., contributes a handsome sum, for the agricultural stallion which shall receive the first prize, if imported from Europe since the last exhibition at Kingston, cannot fail to stimulate the enterprise of importers; and a splendid display of Horses of that description may confidently be expected.

The attention of intending exhibitors is specially invited to the Rules and Regulations of the Show, attached to the prize-list. Entries are to be made as heretofore by filling up printed forms, which will be distributed for that purpose among Secretaries of Agricultural Societies, in the course of a few days. These forms must be filled up and sent to the Secretary of the Association in Toronto, *on or before Saturday, Sept. 12th*, after which no entries can be taken, except in the Horticulture, Ladies and Foreign classes, for which the entry books will be kept open till Monday evening, Sept. 28th, when they will be *finally closed*. This rule will be absolute, as it is decided that no articles can be entered after the above dates, as heretofore, by the payment of fees. All members, subscribing a dollar, can enter as many articles as they choose, free of charge.

The Board of Directers has decided on commencing the business of the show a day earlier than heretofore, with a view of preventing the hurry and not unfrequent confusion characteristic of the close. All articles for exhibition must be on the grounds on the *Monday*, except live stock, which must be arranged not later than *Friday noon*, at which hour members will be admitted. Before, none but exhibitors and officers can be permitted to enter, and those who are not members will have to pay,

as last year, a quarter of a dollar each admission, *from Wednesday noon to the close of the show on Friday.* Intending visitors and exhibitors will do well to bear these things in mind, and carefully examine the Regulations printed in the prize-list.

The site selected for the exhibition is on rising ground, close to the town and railway station, commanding beautiful views of the surrounding country. About twenty acres will be substantially fenced, in which two capacious cruciform buildings, sheds, cattle-pens, &c., will be erected. The contract has been taken, and preparations are in active progress. The fence, buildings, &c. are not intended to remain; all will be removed after the show.

As Brantford is surrounded on all sides by a good and extensive agricultural country, having a large number of enterprising farmers and mechanics, and being now of easy access by railway from different points, there can be no doubt that the number of visitors and articles for exhibition will be unusually large; and the Directors are making their arrangements accordingly. A very efficient Local Committee has been formed, who will do every thing in their power to render the show attractive, and promote the convenience of visitors. Great and most praiseworthy efforts have been made by the worthy President of the Association, who has travelled through several counties, giving public addresses, in which he has set forth in a masterly manner the claims and advantages of the Association. A wider and deeper interest in the objects of the Society has thereby been imparted, and even municipal bodies, out of the county in which the show is to be held, have voted money to its funds. Mr. Alexander's disinterested and patriotic exertions have a strong claim on the gratitude of all who feel a pride and interest in the advancement of this country.

IMPROVEMENTS IN TREATING FLAX, HEMP, &c.

Among the more inportant novelties in the march of progress which the Meeting of the Royal Agricultural Society of England at Chelmsford produced, was Burton and Pye's proposition for the manufacture of flax, hemp, and like fibrous products. In all ages of the world the cultivation and first process in the manufacture of the flax plant (*linum usitatissimum*) have engaged the special attention of the agricultural interest; and although in England much prejudice has existed as to its growth, yet of late years, owing to the rapid progress made in agricultural chemistry, that prejudice has been fast giving way, and now the last objection has all but been removed. The discovery merits special attention, as the samples of flax and cattle-food exhibited in all the stages of manufacture seem to have proved.

The proposition has a two-fold object—*first*, to obviate the objectionable process of rotting; and, *secondly*, to work up the bolls and boon or woody part of the plant into food for cattle; both divisions coming in as an adjunct to Davy's system of separating the boon from the flax by mechanical means without the old method of steeping in water.

It is thus interesting to review the different links in the chain of progress; and to comprehend the real merits of the project before us, it will be necessary to take a retrospective glance at the whole.

Of the old process of steeping in water, spreading on grass, lifting, drying, breaking, and scutching, we need say little to those engaged in it, being from first to last objectionable in every sense of the word. At every stage of the process, for example, the waste of flax is incalculable, while manual labour is dirty in the extreme, subjecting the labor-

ing population to filth and slavery of the most degrading kind; while ponds, streamlets, and rivers are so polluted as not only to destroy fish, but to be unfit for being used by cattle, and while the atmosphere of the country during the period in question is pestilential to its whole population.

Among the first improvements from this state of things was that made by M. Schenk, who accelerated the process of fermentation in the separation of the flax from the boon by heated water, the water being gradually heated by steam in large vats, into which the flax is steeped. When removed from them, it (the flax) is dried in a "hydro-extractor," by means of centrifugal force. The hot water, however reduced the strength of the fibre, while the drying process allowed offensive gummy mater to adhere to it. To obviate these, Mr. Pownall, instead of drying the flax after fermentation, subjected it to mechanicul pressure while in a wet state, and the action of a stream of water for removing the deleterious adhesive matter. Mr. Watt followed by a still more successful process of maceration. According to it, "the flax straw is delivered at the works by the producer in a dry state, with the seed on. The seed is separated from the straw by metal rollers, and afterwards cleaned by fanners. The straw is then placed in cast-iron close chambers, with the exception of two doors, which serve for the purpose of putting in and discharging the straw. The top of these chambers serves for the purpose of a condenser. The straw is laid on a perforated false-bottom of iron, and the doors being closed, and made tight by means of screws, steam is driven in by a pipe round the chambers and between the bottoms, which penetrating the mass at first, removes certain volatile oils contained in the plant, and afterwards is condensed in the bottom of the iron tank, and descends as a continuous shower of condensed water, saturating the straw. This water is a decoction of extraction matter, to which attach the fibrous and more porous portions. This liquor is run off from time to time, the more concentrated portions being used along with the chaff of the bolls for feeding cattle and pigs. The process is shortened by using a pump, or such an arrangement as rapidly washes the mass, with the water allowed to accumulate. In about eight or twelve hours, varying with the nature of the straw, it is removed from the chambers, and having been robbed of its extraction matter, it is then passed through the rollers, for the purpose of removing the epidermes or skin of the plant, and of discharging the greater part of the water contained in the saturated straw, and while in a wet and swollen state, splitting it up longitudinally. The straw then being free from all products of decomposition, is easily dried, and in a few hours ready for scutching." The Society for the Promotion of the Growth of Flax in Ireland appointed a committee to investigate Watt's process thoroughly by experiment, and their report speaks in the most favourable terms, as the following results show:—

	Tons of Fibre.
"100 tons of straw by Schenk's process yielded	5·90
100 tons of straw by Watt's process yielded .	12·20"

But great as these results are, Mr. Davy, by the mechanical means already stated, greatly shortened the process, increasing at thé same time the quantity and quality of the flax.

Lastly, we come to Burton and Pye's improvements specially under investigation.

Under this practice, the flax is harvested under what is technically termed the "Courtrai" system—*i. e.*, after being pulled, it is dried in the field, and then stacked up till the following spring, after which it can be used as required for market. When taken from the stack, the boon is separated from the flax by Davy's machine. The boon, usually considered refuse, or waste, is then ground into meal, under the first head of the invention, mixed with linseed, boiled in water, and formed into cakes similar in size and shape to oilcakes, and used in the same manner as they are, for feeding cattle. The patentees believe that ordinary millstones are the best adapted for grinding the boon into meal; and, when found serviceable, other substances than those mentioned may be mixed in the compound.

The second part of the project consists in treating the fibrous part of the flax-plant with fuller's-earth. For this purpose, the flax is subjected to the action of water impregnated or combined with this well-known bleaching substance and with steam, and then boiled in water. During this latter process, it is alternately pressed close together, and allowed to expand. The water being now drawn off, the flax is allowed to stand for a time under pressure, after which it is passed between pressing and crimping rollers, for the purpose of removing the effects of crimping. During these pressing and

crimping processes, the rollers are wiped by felts or cloths. The flax is then ready to be sent to the hackler.

Two kinds of machinery and apparatus are required for effecting these results, under the second head—the former for steeping and boiling, and the latter for pressing and crimping. Both deserve notice.

The first consists of two rectangular vessels, or vats, the one within the other, an open space between them, for the admission and removal of water and steam. The interior one has a perforated bottom, and into it the flax is placed for being operated upon by the bleaching-water and steam. Above the flax is a compressor, or, as it has technically been termed, a "follower," worked by means of screws, and the necessary machinery in framing over the inner vessel. Between the two vessels pipes for steam run along both sides and bottom of the interior one for heating the water.

From this description of the apparatus the details of the *modus operandi* may be thus stated: The flax is first put into the vessel, and the follower placed above it. Water is then poured into the empty space between the two vessels until it rises up to the follower through the perforated bottom. Steam is next turned on to heat the water, which is gradually done, raising it to 100° Fahr., at which temperature it is kept until the epidermis of the fibre separates, and as much of the colouring matter and albumen are extracted as such will effect. The water is kept at this temperature by a fresh supply mixed with fuller's earth flowing in at one side, while the dirty water is discharged at the other by the overflow-pipes, thus keeping up a washing and bleaching process until the outer skin of the fibre comes off easily by drawing a portion of it through the fingers. When this result has been obtained, the fibres are boiled up in the liquid. The boiling is accomplished by admitting the steam to flow more freely into the lower part of the vessel. During the boiling the follower is kept alternately moving up and down, while a flow of clean water is permitted to run into the vat at the bottom, causing an overflow which carries into the waste pipe all the gummy and other matters pressed out from the fibres, so that they are not allowed to absorb the impurities again, which they would do were they allowed to remain in the vat. Fine flax fibres do not require boiling, and the temperature need not be raised higher than 180° Fahr.—applying the pressure as it rises to 150° Fahr. After the mass is sufficiently boiled and washed, the water is drawn off, the follower screwed down upon the flax, expressing therefrom the principal portion of the water remaining; and in this compressed state it (the flax) is kept for four hours or more to soften, after which it is ready for the pressing and crushing rollers.

The machinery for this second process is more simple, consisting of five pairs of rollers in a frame, with the necessary gearing to give them motion. Two of these—a pair at each end—are plain for pressing, and the other three pairs fluted for crimping. The flax is fed in to the first pair, and passing on through the second, third and fourth pairs, comes out from the fifth ready for the hackler.

Such is a very condensed review of the Messrs. Burton and Pye's proposition. The idea of working up the whole of the flax plant into food and clothing is certainly a laudable one; and we hope the project before us, which has this for its object, will meet with what it merits—a most rigid experimental investigation at the hands of flax growers.—The samples both of food and flax in every stage of their manufacture were promising in a very high degree. The quantity of fine flax, and the almost entire want of waste tow, require special notice. In point of fact, it may justly be said that the whole goes to the hackler as fine flax, the quantity of tow is so extremely small. Another consideration also deserves special notice in connexion with the manufacture, for the manufacturer has entiré control over the article, being manufactured at any stage of the process; thus ensuring, with proper attention, uniformity of quality—a result which cannot fail to be duly appreciated both in the flax market and subsequent stages of manufacture, as in the spinning and weaving. It was otherwise under the old process of fermentation and maceration, especially the former; for under it, it was hardly possible to preserve uniformity in the process of retting, fermentation being greater in one place than in another. Now every farmer who has any experience here, must be aware how largely a difference of fermentation adds to the quantity of waste tow, diminishing in a still greater degree the quantity of fine flax. Retting, grassing, and scutching are three distinctive processes, all of which are avoided by the combination of the systems of Davy, Burton, and Pye. In one respect it falls short of Mr. Watt's process, for in the latter the nutritive matter contained in the steep-water was economised for food, whereas in the former it is lost. A question, therefore, may arise as to whether Watt's process

should or should not be added to the combination, and this extractive matter drawn off by steam prior to the admission of water containing fuller's earth. In this liquid from time to time drawn off in Watt's process, the linseed could be boiled, thus making a richer cake for cattle. We throw out this suggestion not by way of finding fault, but if possible, to advance the interest of the exhibitors. The practical question at issue is probably one of expense, and they are the best qualified to answer this by having recourse to experiment.

OUR PROVINCIAL EXHIBITIONS.

In looking over the "Regulations" and "Prize List" for the "Twelfth Annual Exhibition" of the Agricultural Association, we do not see the evidence we could wish of that progressive improvement, that comprehensiveness of aim, and completeness of arrangement, which twelve years' experience ought to have achieved, and we now desire to point the attention of the zealous members of the Agricultural Board to one or two matters in which we conceive there is great room for improvement.

And, first, *we think that an effort should be made to ascertain officially and reliably, how the results exhibited at each Annual Show were obtained, and to preserve an intelligible record of the facts.* It will be admitted that if the efforts of individuals, the labour of committees, the private subscriptions, and the public grants annually expended upon these exhibitions, produce no higher result that to assure A, B, and C, that they have exhibited respectively, the best horse, bull, or pig, among some half-dozen competitors, the sooner Mr. Vankoughnet tries his hand at another amendment the better. The prize list is framed as if the Association had been organized, as if these Committees gave up their time, as if all this money were contributed chiefly to gratify the vanity of the exhibitors. We have a higher idea of the object of the Association. Emulation and zeal are no doubt excited by the offer of prizes; but the circle within which that influence operates is too contracted to warrant so great an expenditure of means. The discovery of new processes and new facts; the eduction of truth by a comparison of results; and the diffusion of the knowledge thus obtained over as wide a field as possible, were the chief objects contemplated by the founders of these institutions Prizes are merely means to an end. In no other way could the collection, annually at one point, of all the most valuable productions of agriculture, and mechanical ingenuity, be secured at so small a cost to the public. But to what extent have these objects been realised from the eleven exhibitions already held? Where shall we find the record? Except in the memory of a few spectators, what single fact brought to light by these exhibitions has been preserved to guide the implement maker, the breeder, or the cultivator, in his future operations? The press of the day has indeed recorded that A. got a prize for wheat, B, for a bull, C. for a calf, D. for a plough, E. for a harrow, &c. The journalist has also made his passing comment. But the information conveyed by a card, marked "Class XX,—Geese, large breed," and the stupid answers of stable-boys and herdsmen, with an occasional panegyric from the owner of some extraordinary but untried invention, are not the best data for an article which the reader is expected to cut out and preserve for future reference. The "Transactions of the Board of Agriculture," though published officially, give us

no more information than the cotemporary press. The Board cannot publish what it does not obtain, and what, if not obtained in the proper way and at the proper time is lost forever. Take as an example the $100 prize for the best 25 bushels of wheat. This prize has been offered at every exhibition of the Association, except the first. It has been awarded several times in succession to one township—West Flamboro. Now, what fact in the cultivation of wheat has been ascertained and made known for the benefit of the public, through the competition excited by this prize? Is the soil of West Flamboro superior to that of other townships? If so, what are its constituents? Does sand, clay, or loam predominate? What is the subsoil? If there is nothing peculiar in the soil, what system of cultivation did the successful competitors adopt? What was the previous crop? What kind and quantity of manure, and how applied? What variety of wheat, when sown, and what quantity to the acre? These and a dozen other questions of interest to wheat-growers might be asked, but where will the answers be found? A note is apppended this year, that competitors for the $100 prize will be required to send in a written statement, embracing some of the above particulars, but it is not made a condition of the award, and will not probably be regarded as of any importance. Now, we contend that it is of the smallest possible consequence to the public whether Hobson or Dobson obtain a prize for growing the best wheat; that the agricultural interests of the country can derive no appreciable benefit from the decision; and that to record the fact, *without explanation*, or not to record it, would prove of equal utility. But explain *how* the best sample of wheat was produced, state the character of the soil, variety, quantity of seed, time of sowing, &c., &c., so that those who read may go and do likewise, and you tell us something worth recording: something to be published far and wide, and which, in a wheat-growing country like Canada, is cheaply obtained by a premium of $100.

There are many other productions of the farm in regard to which the information that could easily be obtained through these annual exhibitions, would be eagerly sought for and highly valued by the public. But, except in the case mentioned, exhibitors are not requested, much less *required*, to explain a single fact of the *modus operandi!* Is not this like playing Hamlet without the Prince of Denmark? Or is it not rather like bidding your friends to a great feast, exciting their imaginations with a view of the smoking viands, but never allowing them to approach near enough to taste?

2. *There is no attempt to promote good farming as a whole.*—Prizes are given for the best bushel of Potatoes, and the best bushel of Turnips, but the farmer who grew them, and the farm on which they were grown, may both be pointed to as examples to be shunned. That must be a poor field of potatoes from which you cannot select a bushel fit for exhibition. Indeed, four-fifths of the prizes under the present system may be carried off by men whose farms and farm management would never induce the passer-by to suspect that they had received marks of distinction from the Provincial Association. The New York State Society offers prizes for the best managed farms, and appoints a committee to inspect them. The reports oc-

cupy from 50 to 100 pages in each volume of the transactions, and form one of the most valuable features of the work. Competitors are required to give detailed accounts of their system of cultivation and farm management. Why is not a similar practice adopted by this Association?

3. *Implements and Machines are not properly tested—the awards are mere guesswork.*—Take Reapers and Mowers as an example. These important machines are now made in such variety, so great is the demand for further improvements, and so fertile is inventive genius under this stimulus, that the American Patent office has been compelled to appoint an examiner whose sole duty it is to scrutinize the claims of inventors in this department. The patents already granted are counted by hundreds. Canadian manufacturers have also made improvements, and are at liberty to copy those discovered by their neighbours, The difficulty of deciding which among all these machines is the best in *practice,*—will do its work best *in the field*—is too much for any committee of jurors, unless they *see them at work.* To pronounce positively upon the merits of a Reaper or Mower that you have never seen in motion, is simply presumptuous. Your judgment will prove of little value to the exhibitor, for it will not be respected by the public. Judges have acknowledged the awkwardness of their position in being obliged to decide upon the relative merits of machines which some of them had never before seen, and that they had no opportunity of submitting to the test of practice, the only reliable basis for a premium. We have now before us a circular from a committee of the United States Agricultural Society, appointing a NATIONAL trial of Reapers, Mowers, and other Harvest Implements, to be held at Syracuse, New York, the 13th of July. That important Society has adopted as a rule "that all awards on Agricultural Implements or Machinery exhibited at any of its Fairs, shall be based upon a PRACTICAL WORKING TRIAL of the same in the field." The same rule should as far practicable, be adopted, by the Provincial Association. Awards based upon any other criterion are likely to prove unjust to individuals and to mislead the public.

It is not yet too late to arrange for a trial of the Haying and Harvesting Machines to be offered in competition in Brantford. Can we not persuade the Board or Local Committee to undertake it? We know that several of our leading manufacturers would gladly submit their machines to such a trial. And might we not be allowed to suggest as a suitable subject for discussion at one of the Evening Meetings to be held during the Fair, the following:—"How can we best improve the Annual Exhibitions of the Association, and give to its operations more system and greater permanent value?"

SIMPLE CURE FOR DYSENTERY.—The Middletown, Ct., *Republican*, publishes the following simple recipe for the cure of this most troublesome and oftentimes dangerous complaint. The recipe has been practiced in a friend's family, for many years, with uniform success, even in the most alarming stages of the complaint:—

"Take Indian corn, roasted and ground in the manner of coffee, (or coarse meal browned), and boil in a sufficient quantity of water to produce a strong liquid like coffee, and drink a tea-cup full, warm, two or three times a day. One day's practice, it is said will ordinarily effect a cure."

AMATEUR FARMERS.

It is not easy for men to originate revolutions in the particular callings to which they were brought up. The prejudices of education and the cramping influence of habit often stand in the way of their recognizing and adopting important improvements in the instruments and processes of their business; but, perhaps the fact of their dependence on the practice of any art, trade, or profession for a support in early life and a competence in later years, and the consequent wish to make it immediately and constantly remunerative, is a still greater hindrance to the introduction of doubtful or costly changes. The cautious, practical man sees his true policy lies in conducting his business after long-tried and well-approved methods; and success in the established course is not likely to create an inclination to depart from it.

But whatever reproach of timidity and conservatism justly attaches to men in the prosecution of the several pursuits to which they were bred, it is, in general, most emphatically disclaimed when they come to turn their attention wholly or in part, to some other department of effort. There is no reformer so confident, as he who has had little or no previous experience of the difficulty of removing the abuses he proposes to abolish. If, to the zeal such confidence inspires, be joined the additional advantage of pecuniary independence of results, so that the failure of one attempt does not hinder further trial, we may see the man who has habitually managed his affairs with the wisest prudence and the nicest calculation, suddenly display, in his ventures, a liberality often amounting to extravagance.

Society evidently owes a good share of the progress it is making, in both spiritual and material things, to occasional exchanges of place between labourers in the different fields of industry. The lawyer, the doctor, and the divine, are, by educational influences, and by prudential considerations, strongly committed to the particular systems to which they owe their training. But, let the most conservative member of either class—the most determined resistant of innovation in his profession, turn to the cultivation of the earth, and he is far more likely than the life-long farmer to bring to his aid the latest improvements in agriculture and to experiment with newly-announced discoveries and inventions. So, too, we observe that the man who leaves the plough or the anvil for regular or occasional attempts at religious instruction manifests more zeal to discover hidden truths and far more freedom to present to the public any new gleams of light that are revealed to him than do the mass of those who make scriptural interpretation the special labor of their lives.

Agriculture is at present recruiting largely from other branches of industry. It is becoming the common resource for profit, or pleasure, or both, of artizens, tradesmen and professional men.—Many, who do not choose to entirely abandon their old pursuits, divide their attention between them and the tillage of the soil. Merchants, mechanics and manufacturers, who have accumulated capital beyond the requirements of their business, are very generally investing in land, on a larger or smaller scale to suit their means or fancy. The so- called intellectual classes, glad to escape for a portion of the time from the drudgeries of the office, or study, into the open air, find health, freedom, and enjoyment, in cultivating a few acres, or even rods of ground. If the preacher must not speculate in his *pulpit*, he may do so on his *farm* with impunity; while the lawyer, or doctor, vexed by the forms and rules of legal or medical practice, can retire to his garden with full discretionary power to hill up his corn and potatoes or not, and experiment with fertilizers to his heart's content. It is from such as these—men who have gained wealth in other pursuits, and, for the gratification of their taste, pride, or whatever else, expend it in a generous system of farming, and others, who, on a small area of ground, resort to the more ornamental branches of the

business for relaxation from in-door labor, that progress in agriculture is receiving its strongest impulse. They mainly form the class of what we term *fancy*, or *amateur* farmers. From them, the inventor or improver of agricultural implements receives his earliest encouragements The novel hint or discovery of the agricultural chemist meets, with them, a far readier hospitality than with the long-time, professional farmer.

But if the amateur class, as pioneers of the great agricultural army, assume the trouble and peculiar risk of experiments, they do not monopolize the benefits of success, though they must bear the total loss in case of failure. The generosity with which they patronize the inventor, and apply proposed means of increasing the productive power of the earth, is equalled by the readiness with which they communicate the results of their experience; and herein they do immense service to the great body of farmers. Quietly pursuing old, time-honored methods, while an enterprising class are testing the value of new ideas—when the policy of change is fully established, the mass of cultivators stand ready to avail themselves of the advantages it offers. And as these advance with slow and wary tread to occupy the newly-conquered ground, they, through whose labours it has been won, are already engaged exploring fresh fields.—The reproach is often applied to individuals among them, that they do the cause of agriculture no good, inasmuch as the changes they introduce involve more expense than they bring profit. They who utter this charge, forget that we learn as much by the blunders as by the successes of our neighbors; and that an example of what is to be *avoided*, is many times quite as useful as a view of what is worthy to be *imitated*. And, indeed, time often proves that he who has experimented at a loss to himself is a *positive* benefactor to the community in which he lives; since he has brought important inventions and discoveries to the notice of men who were wise enough to make them *pay*.—*R. New Yorker.*

LARGE *vs.* SMALL BEANS.

I tried an experiment, last season, to satisfy myself, which are the better beans to plant, and give the result as follows:

The small beans gave nine and a half bushels from one of planting, and the large ones thirteen and three-quarters from one of planting, The land was light, as you see, by the crop, but equal in both cases. I concede that a bushel of small beans will plant as much land as three bushels of large ones, and many will conclude from this that there are four dollars saved in the item of seed. To such I would say, "don't be hasty, gentlemen." Don't you have to plant three times as many hills to get out a bushel of small, as you do of the large beans?—and then they fall four bushels short of the large ones in product. Here then is a saving in favour of the large beans of two-thirds of the labour and a gain of more than one-fourth in product from a given quantity of seed.

I plant beans north and south, if possible, rows three feet apart, and eighteen inches apart in the row, about six beans in a hill.

I planted last season three and one-half bushels of beans in my corn-field, the product of which I sold for about $100, expenses as follows:—

Planting with Wakefield's Patent Corn Planter,..................	$3 50
Seed,..................	7 00
Pulling and cutting..................	6 00
Thrashing and cleaning,..................	7 50
Total expense,..................	$24 00

You will perceive there is no item in the expenses for hoeing. The reason of this is, I plant the beans within four or five inches of the hill of corn, and they are both hoed at the same time, without extra labour.

I plant the beans the south side of the corn; pull them and hang them on the corn hills, and let them remain until the corn is ready to cut up. They are then thrown down into heaps, the corn cut and set up; at which time I can drive the team and get them, as I do hay, in tumbles. GENESEE FARMER.

CLIMATES OF THE THREE TERRITORIES.

BY LIEUT. MAURY.

Before Humbolt suggested his isothermal lines, or Dové drew them on maps of the world, it was generally supposed that the climate of any place or country might be told by its latitude. Led by this idea, Mr. Jefferson urged that, as the olive grows in Italy and in Spain, we had only to project across the Atlantic the parallels of latitude between which it grows in Europe, to ascertain in what parts of America it would grow equally as well. The part of the country included between the olive-growing parallels of Europe would, it was supposed, be found to comprise the olive regions of the United States. Experiment and trial, however, did not sustain this view of the case.—The olive would not flourish under the latitude here under which it delights there.

As science advanced, philosophers had recourse to the records of the thermometer in different countries. They found places differing very much in latitude, yet having the same mean annual temperature, and when they came to draw a line round about the world, so as to pass through every place having a mean annual temperature of 70°, or 60°, or 50°, or any other degree, they found that every one of such lines was zig-zag, both on maps and the globe, that the isotherms run more smoothly over the water than they do on the land, and that they do not by any means describe parallels of latitude.

Thus, for illustration, let us take the *isotherm* of 36°—as such lines of yearly mean temperature are called—instead of running with the parallel of 45°, or 50°, or even 65°, it runs up in some parts of the world as high as Lat. 68°, and in others we can get with it no further from the Equator than Lat. 45°. This isothermal line goes up to Iceland, where the longest day is without a night, and it comes down in Canada, near Quebec, on the parallel of 45°, where day and night alternate as they do in Minnesota and Nebraska. Yet, notwithstanding the mean annual temperature of Quebec and Iceland may be the same *according to the thermometer*, one may well imagine that the productions of the soil for the two places are very different.

In Iceland the summer is cool and the winter mild; in Canada the winters are severe and the summers hot. The climate of Canada is continental—of Iceland it is insular. Iceland is in the midst of the sea; it is surrounded by waters which have been warmed by the rays of an intertropical sun and brought by the Gulf Stream from the "*Tierra Culiante*" of Central America to dispense summer heat and moisture to the regions of the far north. In the Orkneys, which are not far from Iceland, the winters are rarely cold enough to make ice. Still the mean annual temperature there is the same as that of Minnesota.

If the mean temperature of the two places be the same, and the thermometer at the islands is never below the freezing point in winter, it cannot be greatly above it in summer; and we may infer as a consequence that the sun has not power sufficient to ripen fruits and grains in the Orkneys which the warm summer of Minnesota and other in land districts brings to great perfection.—So far, therefore, as the husbandman is concerned, a knowledge of the crops that are grown in the Orkneys or Iceland would give him no just idea as to the seeds or plants that would grow best and yield most in Canada or Minnesota.

Under glass, and with furnaces, climates are created at pleasure, and physical researches have taught us that the sea water and its currents are grand modifiers of climates—that, in the natural way, they perform offices towards the modification of climates similar to those performed by glass and fire in the artificial way. These researches have revealed to us the processes by which the Gulf Stream softens the climates of Iceland and the Orkneys—how the heat of summer is not so great, nor the cold of winter so intense there as it has it in Canada and Minnesota, although the average daily readings of the thermometer for the year may be the same. Going a step further in this chain of reasoning and deduction, the intelligent farmer need not be told that while the sun in Iceland is not warm enough to mature many fruits that do well in Canada, the winter of the latter will destroy many kinds which never suffer from cold in Iceland.

Again, climate depends more upon elevation above the sea level than it does upon distance from the Equator—for the top of Chimborazo, though close to the line, is covered by its cap of perpetual snow. The length of the night, the intensity of the light, as well as of the heat of the day, the average proportion of clear and cloudy sky, are all functions in the climatic conditions of countries as adapted to this or that vegetable growth. Not only these; for before the farmer can arive at any safe conclusion concerning the kinds of crops which may be cultivated with most advantage in a new country, he must also know something of its seasons of drouth, with the times and quantity of rain. We have more rain here than in England, yet the climate of England is damp and this dry. Many kinds of vegetables depend quite as much for healthful and vigorous development upon the amount of moisture that their leaves suck up from the air as upon the amount which their roots derive from the soil.

Therefore, in order to determine what plants and vegetables the imigrant to Kansas, Nebraska, or Minnesota should carry with him, we should refer to some old country where the climate may be found repeated, if possible,—not only in quantity of sunshine, length of summer and winter, distance from the Equator, height above the sea, and the range of the thermometer, but also as to dew-point, and precipitation, clear-sky, and cloudy weather. To find such a country we must go far away from sea-board; with this condition annexed we are brought to the conclusion that we may look for another such nowhere but in Asia.—First, it must be between the isotherms of 44° and 36°. It is between these isotherms that that great and remarkable "divide" is found which encircles the earth, and which, in Europe, Asia and America, separates the waters which flow north into the frozen ocean, from those which flow south into the summer seas. This "divide" passes through Minnesota, where the Red River of the north, and the Mississippi, with other southern streams, have their sources. It also passes through Russia, where the Volga and Oural, on the one hand, drain southwardly, and the Obey northwardly, on the other.

At these two places in this "divide" the annual mean temperature is nearly the same —the distance from the sea westwardly is about the same,—the length of the days and the seasons, the intensity of summer heat and winter cold are the same, —the height above the sea is also about the same, and each also is in the province of summer rains. It was here in the old world, between these two isotherms in the valley of the Volga, that Humbolt found the most delicious fruits that he ever met with in all his travels, and the air so pure that you might expose to its influence the most highly polished steel for many days without having its sheen dimmed in the least.

These three Territories of America have as far as observations—meagre it is true—enable us to judge, nearly just such climates as that renowned traveller found about the Caspian Sea. Some of the climates of Kansas—for in these Territories there are many climates—are adapted to the most luscious grapes, peaches, olives and figs. The apple and the pear, the apricot and cherry, the melon and plum may be raised in this Territory; but in some much better of course than in others.

As we proceed north through Nebraska into Minnesota, the climate, particularly between the meridians of 95° and 100°, becomes more and more severe; and of course with the severity of the climate the above quoted list of fruits rapidly fall off. Travellers in approaching the base of the Rocky Mountains through Kansas and Nebraska often recognize the same lizards and other reptiles that are found in Northern Texas and New Mexico, indicating a remarkable mildness of climate.

Texas, California and Kansas will be the rival grape States of the Confederacy. In some parts of Nebraska the vine and the peach, apple, pear and apricot, if not the fig also may do well. Corn, wheat, oats, rye, barley and potatoes, and esculents generally, will produce finely. Let the Kansas emigrant, by all means, carry the peach and the vine with him. In Minnesota, however, the out-door cultivation of either will be followed by labour lost.

Murrain in Lower Canada.—The *Quebec Mercury* says that an alarming disease prevails among the cattle in the parishes of La Beauce, on the south side of the St. Lawrence the origin of which cannot be traced. Upwards of fifteen hundred animals, chiefly cows, have perished.

HAY-MAKING.

Although we have this season been favoured with but very little of the weather which experience informs us is necessary for hay-making, still as there is and will be an immense amount of material therefor, awaiting but the brightness and warmth of the "King of Day," to fill to overflowing the barns and stock-yards of the farmers, we purpose to jog the minds of our rural friends upon the importance of holding themselves in readiness to fully perform their duties when the opportunity presents itself.

The period at which grass should be cut in order to best meet the wants of stock is a matter of much consequence, and one which has received a large share of attention both from the agricultural Press and those who swing the scythe. It has been definitely settled that the great object to be sought is the preservation of hay in a condition most nearly resembling the grass in a perfect state. In order to accomplish this end, grass should be cut when it contains the greatest amount of gluten sugar and such other matters as are soluble in water. When the plant has formed its seed, this stage has passed, and woody fibre predominates,—this being insoluble, cannot assimilate itself to the requirements of the animal stomach. When grass is in full growth, but before the seed has formed, it contains the greatest amount of saccharine matter; this speedily diminishes as it ripens, which, together with the decay of the leaves, causes a loss in its nutritive properties. Quite a number of grasses are exceptions to this rule—some containing the most nutriment when fully ripe—but as a general principle, for the benefit of both hay and the land upon which it is grown, we would advise the cutting at full flower.

When the elements and the grass are both in a condition favourable for the commencement of operations, it will not answer for any dallying on the part of the farmer. The proverb, "make hay while the sun shines," conveys to the mind the necessity of being in readiness, of having all the material requisite to the successful completion of labor "on hand" when its assistance shall be needed. See that your implemenis are in perfect condition, and, when you should be in the field, there will be no such idle excuse for non-appearance, or such perplexing detention, as will arise when there are rakes to mend, or scythes or mowing machines to put in order.

A frequent, and we might add, universal complaint among farmers during "haying and harvesting," is the scarcity of labourers, and the exorbitant prices demanded by them "for services rendered." This should not be—it is not of necesity. If the selection of such help as will be wanted is put off until the last moment, those who thus delay will be compelled to grant whatever price may be asked, and, in addition, put up with such assistance as can be obtained, no matter whether it be "good, bad or indifierent." By a little foresight and calculation, those needing "extra hands" can tell almost precisely when the will require them,—for what length of time—and should make their arrangements accordingly.

The process of curing should, if possible, be perfected in the cock. Hay thus made retains more of the colour and juices of the grass than when thinly spread over the field exposed to the rays of the burning sun. It should, if spread, be gathered into windrows or "foot-cocks" at night—dew falling upon it when thus scattered, results in more or less injury. The chief point after cutting is to preserve it from dew and rain, as these soon wash away the soluble salts, and its keeping qualities are thereby seriously affected, for hay thus deteriorated ferments very readily when stacked. If the weather is unfavourable the less hay is shook about the better. It will preserve its nutritive properties for a considerable period of time if left undisturbed, but when submitted to repeated dryings and wettings, it is soon utterly ruined.

Each season of hay-making as it passes away, furnishes new proofs of the utility of hay-caps, and he who, for the purpose of saving (?) a few shillings, or even dollars, refuses to provide against emergencies that may arise, is fully endorsing the policy known as "penny wise and pound foolish." The hay crop is one of the most important that farmers can raise, and every means should be taken not only to secure it in the best condition, but to add to its bulk. Thousands of acres in grass do not yield a tithe of what they onght, and what a little attention on the part of growers might make them produce. This crop keeps starvation from the barns and cattle yards, and such exertions should be put forth as shall prevent waste either by unpropitious weather, or the carelessness of those engaged in making and gathering.—*Rural N. Yorker.*

NATURAL ENEMIES OF INSECTS.

The depredations of insects on the crops of the farmer, constitute a draw-back to his profits of no trifling amount. To check the ravages of the locust (grasshopper), the Hessian fly, the wheat midge, the caterpillar, the canker-worm, the wire-worm, and various other tribes, is an object of constant study. But while artificial means receive so much attention, the natural means are not sufficiently observed. The rapacity of animals—the instinct which prompts one race to prey on another—was doubtless designed by the Creator as a means of preserving a proper balance throughout animated nature. Man, made "ruler over the beasts of the field and the fowls of the air," disturbs this balance, and in some instances, through ignorance, disturbs it to his own injury. In following the motive of self-gratification by taking animal life, he does not always sufficiently understand the characteristics of the different species, to

"Distinguish which to slaughter, which to spare."

Hence the study of those simple branches of natural history which comprehend the animal races deserve the special attention of the farmer. A knowledge of the habits of various quadrupeds, birds, and insects, would in many cases enable the agriculturist or horticulturist to promote his interest, either by their destruction or preservation.

In regard to birds, there is much diversity of opinion concerning the merits or demerits of some species, as affecting the interest of the farmer and gardener, which should be the fundamental rule of judgment in reference to all animals. We are inclined to think that some of the morbid sympathies which have of late arisen in respect to specimens of the higher order of animals, whose conduct is injurious to the general welfare, has extended itself, somewhat, to other bipeds, and may have caused the observance of an undue lenity towards evil doers who possess the captivating traits of a sweet voice and handsome external appearance. Besides, people are inclined to hasty generalisation ; it being known that some species of birds are great insect-destroyers, it is inferred that others are so whose habits are not known. We offer a few remarks in regard to some species.

The crow (*Corvus americanus*) is claimed by some persons as the special friend of man —at least, it is argued that he, on the whole, benefits the farmer more than he injures him. It is evident that this is a subject on which considerable freedom of opinion must be allowed. If some crow would leave us an autobiography, comprising a faithful journal in regard to his conduct for every day of his life, we could sum up the account as a basis for the character we should give him. But at present we can only "reason from what we know." His defenders admit that he pulls up corn, but they say he more than pays for this in destroying grubs and grasshoppers. But the offence of pulling up corn is not by any means his only one. He is a terrible enemy of small birds, destroying both their eggs and young in great numbers. He is rather indiscriminate in this predaceous warfare, and many of the species he attacks are feeders on insects to a much greater extent than himself. Many persons may have noticed the consternation into which all the small birds are thrown by the presence of the sable monster. They try to allure or drive him from their nests, and the king-bird and some kinds of black-bird have courage and art sufficient to protect their charge, and even make their powerful enemy "suffer some," but the defenceless sparrows and finches yield an easy prey. His appetite for eggs is so strong that he will rob the nests of turkeys when they occur in retired places, watching by the hour for the turkey to leave the nest that he may be unmolested in his luxurious meal. It makes no difference what stage of incubation the eggs are in—a fresh egg or an embryo chick are devoured with the same relish.

It is true the crow does eat insects, sometimes, but he prefers taking his animal food in the shape we have mentioned, or as a last resort, in the shape of young frogs, which are themselves insect-feeders. On the whole we believe it is as justifiable to kill crows, as to kill wolves or foxes.

Another bird whose character has in some instances been rather too favorably viewed, is the American robin (*Turdus migratorious*). His friends claim that he is a sweet singer, tolerably good-looking, and a destroyer of pernicious insects. We have no rule

for estimating the former qualities—there would be no objection to every man fixing his own standard for them, provided the birds wanted for his own entertainment were kept wholly on his own premises. As to destroying insects—the robin eats worms, but they are mostly the angle-worm (*lumbricus*) which does no injury, but in some cases is beneficial to vegetation. But the bird is especially a *fruit-eater*, while he does little or nothing towards the production of his favorite food. Ask the fruit-cultivator who makes his living in part by the sale of May Dukes, Black Eagles, &c., how much the robin aids him in his business? Ask him if he can afford to take the dandy's love-songs, piped ever so sweetly, for the loss of the earliest strawberries, cherries and finest pears, on the sale of which he depended, perhaps, to procure food and clothing for his wife and children? One of the most distinguished horticulturists of this vicinity (we might say of the country), after learning the habits of the robin "like a book," has adopted the plan of shooting every one that alights on his grounds. We believe he is right.

The cedar-bird, or cherry-bird (*Bombycilla carolinensis*), is a devourer of some insects not usually eaten by birds—such as the canker-worm and caterpillar. Where the former abounds, it forms almost the whole food of the birds till currants and cherries begin to ripen. By this time the canker-worms have gone into the ground to pass through their final transformations, and the birds take to fruit. They are pretty *hard* on the earliest cherries, but after wild raspberries and whortleberries come in, occasion but little annoyance. We are inclined to think this is a useful bird, in some neighbourhoods, though we would not allow him to steal the "first fruits of the cherry-orchard."

The cuckoo (*Coccyzus americanus*) feeds on the common tent caterpillar. It destroys great numbers of these worms, not only gorging itself with them, but killing more than it can eat, and tearing their tents to pieces. As an offset to this, however, it eats the eggs of other birds, so that its claim to usefulness is doubtful.

The swallow family (*Hirundo*) are feeders on winged insects. They are among the most useful birds to the farmer. They do no damage to any crop, and they destroy many flies and moths which are either annoying to man or domestic animals in their present form, they are the parents of larvæ which would be injurious.

The yellow-bird (*Carduelis tristis*) is a very useful bird, and one that has been most cruelly misjudged. Since the prevalence of the wheat midge (miscalled weevil), the erroneous idea has been entertained that the yellow-bird fed on wheat. It was seen to alight on the heads of standing grain, turn down the chaff with its beak, and, apparently, peck at the grains. This was enough, in the eye of a cursory observer, to prove that he was a pilferer of wheat, and deserved death. Dr. Fitch, so far as we know, was the first to point out this mistake, and to show that the food which the yellow-bird sought in the wheat-head, was the *larvæ of the midge*, and not grain. He found that the bird, with wonderful sagacity meddled only with the heads containing the insect, in which the grain was generally so shrunken as to be of little value. We see it stated in a late paper, that a farmer near Binghampton, N. Y., in order to convince his neighbours of their error in killing the yellow-bird, opened the crop of one, and found in it more than *two hundred* of the midge larvæ, with only four grains of wheat, into which it was said the insects had "burrowed." But as the insect does not "burrow," it is simply probable that the poor grains were swallowed accidentally in consequence of the larvæ being in contact with them. We shall continue this subject in a future number.

Don't Overtask the Young Brain.—The minds of children ought to be little if at all tasked till the brain's developement is nearly completed, or until the age of six or seven years. And will those years be wasted? or will the future man be more likely to be deficient in mental power and capability, than one who is differently treated? Those years will not be wasted. The great book of nature is open to the infant and the child's prying investigation; and from Nature's page may be learned more useful information, than is contained in all the children's books that have ever been published. But even supposing these years to have been absolutely lost, which is anything but the case, will the child be eventually a loser thereby? We contend with our author, that he will not. Task the mind during the earlier years, and you not only expose the child to a greater risk of a disordered brain—not only, it may be, lay the foundation for a morbid excitability of brain, that may one day end in insanity—but you debilitate the bodily powers, and by so doing, to all intents and purpose, the mind will eventually be a loser in its powers and capabilities.—Dr. Robertson.

RUTA BAGA, AND MILK–TASTING "TURNIPY."

Useful to all, you may be more especially so to the new comer. What is Ruta Baga? The Michigan *Farmer* recommends Ruta Bagas, or Swedish Turnips, introducing them as if they were the same. The Rochester, N. Y., Seed Lists specify the Prices of "Ruta Baga" seed, and also of "Skirring's" Swede. Skirring is evidently a mistake for "Skirving," the Liverpool seedsman, who has introduced for years past the best Swede Turnip grown. No other species can excel it—especially as a keeping root. Other species may be larger in bulk, milder in flavour, and brighter in colour; but none will be found equal in the qualities so essential to this climate: it will freeze without rotting in case of partial thaw, and, properly housed, they are as good in May as others are in February. They will give a taste to the butter; but this is lessened in three ways,—By milking after the cows have been fed, but before the cud has been chewn, and then giving them hay; and milking in the morning as before, that is, before the morning turnip meal can have been digested. By letting the cows have access to plenty of salt, and mixing a little with their water. By "scalding" the milk, as it is called, on the Devonshire plan—that is, putting the milk pan on one of your stoves, at a moderate heat, for about 45 minutes. The milk and cream will be separated. The milk pan is allowed to cool, and the cream taken off. Butter is made with half the churning, and all the nauseous taste, if any, is left in the milk, and not in the cream.

NOVICE.

Salving Sheep.—It is customary among the best wool growers of Europe, and with some in America, to smear their sheep after being sheared, with some sort of ointment The object of this to kill any ticks that may be upon them, to heal any accidental cuts that may be made while shearing, and to ward off the attacks of flies. Several receipts are given by English authors for this purpose. One of them is:—1 lb. of arsenic, 12 lbs. of butter, 3 lbs. of bar-soap, 2 bottles of fish-oil.

No doubt this would kill the insects, but we object to the use of arsenic. We wouldn't have it about anywhere on the farm.

Another, more simple, much safer, and we doubt not full as efficacious, is this,—equal parts of fish-oil and tallow, a little tar may be added, sufficient to give a tarry odor to it which will be offensive to flies. This preparation is also recommended to be used in winter, to aid in warding off the effects of the weather, but if the sheep have a chance to run under sheds and keep dry, there is not great need of it.

One writer, who recommends highly the oil, tallow, and tar salve, says it may be applied when thick, by being taken up by the thumb and finger, and spread along the back, and worked amongst the wool, and when thin, the palm of the hand, in a hollow shape, is used for lifting and pouring it on and working it in.

We have no doubt some application of this kind would be of great benefit to the sheep in fly time.

Amalgamation of Potatoes.—What say our potatoe philosophers to the amalgamation of potatoes by planting two or more varieties in one hill?

What say our chicken philosophers to the amalgamation of chickens by hatching the eggs of two or more varieties in the same nest? They will probably say, all the amalgamation which takes place through the shell of the eggs, is not likely to improve the breeds very much. And though we may be considered dull, we certainly cannot comprehend by what law of nature any amalgamation can take place, except through the sexual organs of the plant found in the flower, and affecting only the seed in the ball on the top of the vine, and so the tubers produced from that seed. If true philosophy can teach any other we will be happy to learn.—*Farm Journal.*

POTASH.

July is not the month, it will be said, to write about Potash; but in some points of view it is. July is the month when every noxious weed, from the thistle to the fern, will be in full vigour. Go round the snake fences, and whatever may be the promise of the crop, the condition of the weeds is from the wet weather, most unmistakeable. If these are left to seed themselves, the condition of every farm will be fouler than ever. All these weeds are valuable for their ashes, or rather for their Potash, or the alkaline salts with which they abound. Cut down before they have blossomed, not only is the mischief for next year prevented, but all the valuable salts in the plant are preserved. And if the stalks are burnt, a heap of valuable manure is at once secured, which, used as a top-dressing for the young turnip or mangold crop, will be found very efficacious; or preserved in the dry for future use, or added to the potash heap. Cut down after the weeds have blossomed, and when the plants have seeded, not only are the alkaline salts they contain almost entirely lost, but the mischief for next year has been sown. Very slight is the labour and time requisite for this purpose. Any showery afternoon may be employed, and children and boys can gather into heaps, and the fire be put to the heaps, so soon as they are dry enough to smoulder and burn. According to Dr. Ure, the great English authority, the Canadian Thistle, when cut in full growth, contains in every 1000 parts 35·37 of Potash,—when cut after or during seeding it contains scarcely any. The Fern, the large Rush, and common Nettle, all contain a far larger proportion of Potash than does even the Maple. The value of wood ashes, or rather the ashes of vegetable substances, as manure, depends entirely upon the quantity of alkaline salts they contain, just as their commercial value for the Potash manufacturer depends entirely upon the lye (*lixivium*) containing Potash. Herbaceous plants contain more than grain bearing plants,—the Vetch or Tare, more than Rye or Wheat. Potato stalks abound in Potash, and a thousand other stalks which are wasted; so that the Farmer has at his own door, wasting on every side, the very substances which he requires as a stimulant for his young Root crops. The division of hard wood ashes and soft wood is not, according to the same authority, to be entirely depended upon. The Pine contains less Potash than any tree; and the Sugar Maple, especially when cut without being tapped for the sugar, and burnt at once, contains more than any. But the Beech, which is classed as hard wood, contains less; and the Elm, which is rejected as hard wood fuel, contains almost as much as the Maple. As a rule, the more succulent the herb, plant, or tree, the more alkaline salts does it afford. A cask of the best Pink Canadian Potash, as imported at Liverpool in 5 cwt. casks, is found to contain pretty uniformly 60 per cent. of absolute Potassa; and the best Pearl-ashes to contain 50 per cent. It is very questionable whether the Canadian farmer does not lose by the exchange when he gives his bushel of wood ashes for a little hard soap. There is scarcely a crop grown but would be thankful for this valuable manure, which climate compels him to manufacture, and of which Nature has given him so bountiful a supply.

BOYDELL'S TRACTION ENGINE AND ENDLESS RAILWAY.

[*From the Mark Lane Express.*]

On Wednesday last we left the "busy hum" of the city, to resort to where the ploughman has been wont to "plod his weary way." In plain terms, we joined the company who went to Wimbish Hall Farm, to witness the trial of a machine, that beyond a doubt is one of those inventions destined to supersede, to a certain extent, the most ancient implement of husbandry—the dexterous management of which has hitherto constituted the proudest achievement of the agricultural labourer and the glory of the farmer. Notwithstanding the claims that prescription confers upon this old and favorite servant, simplified and perfected as it has been by science, and beautified by artistic skill, its condemnation as a cultivator solely dependent for its application upon animal power, is sufficiently insured to render its decline but a question of time. Ere long it must be allied with, or superseded by, the monster energy of steam in place of horse power,

Wimbish Hall is situated at the distance of four miles from Saffron Walden in Essex. The farm on which the trial of the Traction Engine took place, has recently changed hands, being now tenanted by a young farmer of the name of Woodham. The soil consists of a strong—very strong clay, common to the district, but having a subsoil of a mixture of clay, sand, and marl. The tract of land evidently over-lies the chalk basin, the outcrop of which is seen on the east side of Walden, where the bed of that mineral is of indefinite thickness, but exhibiting at the Walden Lime-works a perpendicular face of 25 or 30 feet. The field on which we found the machine at work, was perhaps as unfavourable a one, for the success of the trial, as could have been selected in the whole kingdom. With a soil naturally heavy, adhesive, and intractable, it had, as a matter of course, been latterly neglected by the out-going tenant; and, being under a dead untilled fallow, was sufficiently hard-baked by the sun, wind, and rain, alternately, to make it difficult enough to manage under any circumstances, but particularly so with a new machine, handled by men unaccustomed to its peculiarities. Added to these disadvantages, was the arrangement, by which the land was to be ploughed *athwart* the old ridges, which greatly increased the difficulty of working the ploughs. It was remarked to us by several old farmers, that "if they worked well on that land, they would do so any where."

There were only three ploughs at work when we reached the field. On the first day, (Tuesday) there were, as we understood, six, or rather three double ploughs; but it was evident these were not adapted, in point of strength, to the stubborn character of the soil, for all of them were broken or strained. Those subsequently used were the common ploughs of the farm, The machine was travelling at the rate of about three miles per hour, or probably two and three-quarters miles, exclusive of stoppages. Its motion was steady and direct; and it appeared to be under as complete control, in regard to stopping and backing, *to an inch*, as a horse; the ploughs performing their part with perfect efficiency, if not with ease to the men who held them, and who had evidently no sinecure berth of it. The furrows turned were fully a foot in width, and four, six, eight, and even ten inches in depth, accordingly as the managing engineer wished to test the capability of the machine. We particularly observed that the furrows, instead of being turned over in one continuous, unbroken surface, which, in the common ploughing of such land, renders the harrow useless until the soil has been mellowed by the atmosphere, were, by the quick action of the ploughs, broken up and separated, so as to expose the whole body of earth to the action of the air. We have no doubt that, if necessary, the harrows might have been efficiently employed the next day; for, on pressing the soil with the foot, it at once crumbled into pieces. We mention this as of particular importance on so adhesive a soil as the one on which the trial took place. In conversation with several of the farmers of the district, they one and all expressed their approval of the manner in which the ploughs performed their work. Some of the older ones feared the ploughing "was too deep," admitting, however, at the same time, that where the land-drains had been dug, (which, of course, were much deeper), they would expect the best crops, either of corn or roots. A delay of three hours took place, in consequence of the breaking of a piston belonging to the pump. This, however, was neatly repaired by a smith in the village; and the machine got to work again about four o'clock. Mr. Hemmings, the Secretary of

the Company who have purchased the patent, has promised us a statement of the result, in regard to the quantity of work performed per day, and the expense, which we hope to have ready for our next publication.

Having thus given our opinion of the work performed, in which respect we consider the trial to have been successful, we have the less pleasing, but no less necessary task of stating what, according to our views, are the most apparent defects of the machine. These are chiefly confined to the mode of traction, which, as applied when we saw it, appeared irregular and confused, rendering the ploughs very liable to be thrown out of their work. It struck us that this was chiefly owing to the distance between the tractive power and the plough; or, in other words, the length of the traction-chain, which increases both the difficulty of holding the plough, and the irregularity of its movement. In common ploughing with horses, it is considered that the nearer the plough is to the motive power, the steadier and more regularly it works; on the principle that the segment of a small circle is under more complete control than that of a large one, the gyrations of which, too, are wider when a disturbance takes place.

Another inconvenience, arising we apprehend from the same cause, is the great strain upon the men holding the ploughs. This, on such a soil as that of Wimbish Hall Farm, must very soon exhaust their strength. And besides, the chains approaching so near each other are liable to get entangled, whilst the men find it very difficult to keep clear of them and avoid an accident. They certatnly ought to have nothing to think of but the work before them, which, with a machine of such power, requires undivided attention; and this cannot be given with the chains in such close proximity to the legs of the ploughmen as was the case on Wednesday. Possibly this objection may be in some respect modified with the double ploughs, which allow more space between each chain. But the former objection holds equally good with them as with the single plough, being at the same time, of double the importance in regard to delay.

The Endless Railway, unsightly though it be, performed its task with perfect efficiency, and conveyed the eight or ten tons' weight over the land, without any material indentation to mark its pressure. The steam-engine was of ten-horse power; but with a pressure of 70lbs. is equal to thirteen horse. This allowed four and one-third horse power to each plough; though it was the opinion of some of the farmers, that it would have required five or six horses to have drawn a furrow of the same width and depth on the same land. The engine consumes about 10cwt. of coals per day, when at full work; and the engineer calculated that it would turn over eight acres of such land as that of Wimbish Hall Farm, in the same time.

On the whole, we consider the trial to have been a perfectly successful one, and that it demonstrates to a certainty, the applicability of steam, as a motive power, to the cultivation of the land. Boydell's machine had already been tried with success at Chelmsford, Thetford, and other places, upon soil both of a kinder and lighter texture, and that had also been previously under proper cultivation. At Thetford, as we understand, with six ploughs, it turned over 20 acres per day; and had the whole power of the engine been applied, it would have completed 30 acres. It wanted only a trial on such soil as that at Wimbish Hall to complete the series. We consider that, and the Thetford soil, as the two extremes of light and heavy land, after cultivating which, with success, no doubt can be entertained of the machine working well upon soils of intermediate texture.

Whatever defects therefore the machine may exhibit in this its infancy, they may scarcely interfere with the question at issue; as they will undoubtedly be rectified as experience points them out. Certainly we have advanced far enough already to be assured that steam ploughing is perfectly practicable. And with so many mechanical heads at work on the subject, we confidently expect, ere long, to see a perfect and simplified machine, applicable to all soils, and at least as economical as horse-power.

Varnish for Rustic Garden Seats.—First wash the wood-work with soap and water, and when dry do it over, on a hot sunny day, with common boiled linseed oil; leave that to dry for a day or two and then varnish it once or twice with what is commonly termed "hard varnish." If well done, it will last for years, and prevent any anoyance from insects. Now is the time for varnishing such seats.—*Gardener's Chronicle.*

AGRICULTURAL EXPERIMENTS IN FRANCE.

(TRANSLATED FROM THE FRENCH BY THE "COUNTRY GENTLEMAN.")

LARGE BEET CROPS.

The distinguished French agriculturist AUGUSTE DE GASPARIN, has communicated to the *Journal d' Agriculture Pratique*, an account of an experiment iu the cultivation of the beet which is so instructive that it deserves to be transferred to our columns. The experiment was made on about one fourth of an acre, and the yield was at the enormous rate of 127 tons (of 2,000 lbs.) per acre. To produce such a crop the author says "it is necessary to observe eight conditions, viz :—

1. Deeply trench the soil.
2. Manure largely.
3. Crowd the plants to a distance of not more than a foot from each other.
4. Irrigate the land every fourteen days when it does not rain.
5. Hoe after each rain or irrigation.
6. Trim down all plants that begin to go to seed.
7. Remove no leaves for fodder, as is often done.
8. Leave the beets in the ground until the end of November, or until the course of vegetation is finished,"

The author remarks with regard to these conditions, as follows :—

"1. The deep tillage allows the plant to attain its utmost development, so far as length of root is concerned, and probably also in all its proportions,

2. Seven hundred cubic feet of good stable manure, and three cwt. of rape-cake, were applied to the trial plot of about one-fourth of an acre.

3. The seed were sown on the first of January in a hot-bed, and in April at the usual time of sowing, plants as thick as the finger were set out in the field. This early planting is very essential for the highest success. When the beets were dug, they had been in the ground during a vegetating period of nine months, and as the roots acquire a new concentric ring every fourteen days, they had eighteen rings in all, or six more than those sown at the usual time ; and since these six rings were the outer ones, the volume of the beet was more than doubled.

4. Since the roots of the beet do not spread far, laterally, the plants may be grown very thickly. The author observed that when from fault in sowing, two seeds fell into the same hole, the plants were nevertheless as well developed as the others,

5. Irrigation is indispensable for growing the heaviest crops. During the last two seasons, when it was not possible to irrigate, the yield was much smaller. Nevertheless a certain care is needful in the use of water, for if it be applied too copiously, the beets are apt to be hollow.

6. It is necessary to stir the ground after irrigating, since the sun and wind dry and bake the surface ; however, after three hoeings the foliage becomes so dense as to cover the soil completely, so that a fouth hoeing is very difficult to perform. At this point of growth, the necessity for hoeing ceases, since the surface of the soil and roots are protected from the sun and wind. Plants of so early growth are apt to run to seed, but if the flowering stem be broken off, the roots continue to increase like the others.

7. Stripping off the leaves, especially if this is done during the dog-days, arrests the developement of the plant.

8. The roots should not be pulled until November, after all growth has ceased. The roots double their dimensions during October and November if the weather be warm.

Such is the secret of producing beets at the rate of 127 tons per acre, or 2,100 days artions for any domestic animal. I have found that small cows never consume more than 120 pounds of beets per day, and that with this allowance they grow fat.

The following sentence has significance for many parts of the country. "I rejoice at the noise my experiments have made, because here in the south of France, they will long remain the only ones of the kind ; here, where cattle keeping appears to be more and more neglected, in order to devote the soil to the production of commercial plants, (tobac-

co, flax, &c.,) whose culture can only be continued by the help of commercial fertilizers."

The author continues: —"at my instance, this plan of early transplanting has been adopted at the Age Reform School of Mettray, and the first trial resulted in doubling the usual crop, although no manure was applied. My brother saw at Grenoble a field of beets cultivated in the same manner. The roots had an average weight of thirty pounds (14 kilogrammes,) so that calculating there were only 8,000 plants to the acre, the yield would be no less than 124 tons. This was in September. There were still to form four new rings on each root, so that the final yield must have exceeded mine, and this was on the large scale.

In a warm climate, then, by heavy manuring, irrigation, early transplanting, and good tillage, such results may be procured. Where the vegetative period is shorter, where there is less warmth and less water, and where a frequently beclouded sky hinders the solar radiation, the produce will not, of course, turn out so high.

The point of production I have reached, however extraordinary it may appear, is not the limit. On the banks of the canal of St. Gilles, in the region so celebrated for its prodigious wine crops, a beet has been grown weighing 132 lbs. (60 kilos.) How many such are required to weigh 500 tons? Can we not study out, and then work out the condition for such a phenomenon?

We are having here, on this question, such a discussion as has come over to us from England, where many persistently discredit the wonderful stories about the yield of Italian Ray Grass. The timothy-growers cannot account for the crop of 50 tons per acre (Scotch); but when I see all the care in cultivation, the showers of liquid manure, the perfect drainage, and the use of steam-power, I am not difficult to be convinced of the truth of these assertions. The Englishmen have brought their plant from the extreme of Italy; have put under contribution the energetic vitality of the South, and have united it to the industrious activity of the North."

The plan of transplanting root crops from hot-beds, originated with Mons. Koechlin, and was practiced by him in Alsatia. He is said to have obtained on ground "perfectly prepared," beets averaging 17 kilos, =37½ lbs., and a total yield of 156 tons per acre! Raising the young plants in a hot-bed is no impracticable thing. It is easy to raise an artificially heated bed, and the seeds can be sown so thick that 40 square feet will furnish plants for an acre.

The English farmers, as I saw in Gloucestershire, are in the habit of transplanting cabbages, in order to occupy ground from which summer crops had been taken.

The average root crop of England is about 25 tons (turnips, carrots,) to 30 tons per acre (beets). We have now authenticated instances of four, five, and even six times these products. Who can doubt that it is cheaper to gather large crops from a small, well tilled surface, than medium crops from a larger area?

Salt for Sheep.—The first thing the shepherd in Spain does when his flocks return from the south, the summer downs, or pastures, is to give them as much salt as they will eat. Every owner allows to each thousand sheep 2,500 lbs. of salt, which they consume in about five months. They eat none in their journeys, nor are they allowed any in winter, as it is thought to produce abortion when given to ewes forward wlth young. This has been the custom, and it is thought to be the true reason why the Kings of Spain could never raise the price of salt to the height it has maintained in France; for it would tempt the shepherds to stint their sheep, which, it is believed, would weaken their constitutions and deteriorate their wool. The shepherd places fifty or sixty flat stones at the distance of about five paces apart, strews salt upon each, leads the sheep slowly among them, and every one is allowed to eat it at pleasure. But when they are feeding on limestone lands, they eat no salt; and if they meet with a spot of mixed formation, they are said to partake of it in proportion as the soil is mingled with clay.—*Wool-Grower.*

Market gardeners have two methods of trenching their lands; when both soil and subsoil are good to a great depth, they turn the surface under, and fetch up a fresh spit from below; but when the subsoil is poor, or strong clay, they fast and trench it, as they term it, throwing the surface spit forward and always keeping it uppermost, digging the subsoil with the foot in the trench, without bringing it to the surface.

MANAGEMENT OF THE FARM.

If we were to judge by cases which we very often meet with, we would be led to form the conclusion that farming is certainly a wonderful trade—that it is, in fact the natural state of man, a state to which he must inevitably revert, no matter how little connection his previous training and habits may have had with the subject, provided he can " babble of green fields" and have "a taste for the country entirely his own." Let him be brought up all his life within the smoky precincts of a city, familiar with farm produce only in the shape of a four pound loaf, or a joint of meat, still if he does possess, or fancy he possesses, " a taste for the country," with sufficient means to permit the indulgence of such a taste , he is, forthwith, qualified, in his own opinion at least, in every respect to become a genuine clod-hopper. The blundering attempts of such men are, in general only provocative of laughter, whilst their example, unless, indeed, they are unfortunately placed in an influential position, exerts little or no influence on the real business of farming. In the latter case, indeed, they are positively injurious, inasmuch as from the respect due to their position, or from extrinsic causes, the vagaries which they dignify with the name of farming, are often apt to lead some into error, to create a disgust in the minds of others against the prosecution of the business in any degree whatever, and to cover with ridicule a profession of vast importaace. Farming, like medicine, has its quacks, whose professional pretensions being loudly, unblushingly, and unremittingly proclaimed to the world, backed up as they often are by certain adventitious circumstances, acquire for a time a degree of importance to which they are by no means entitled but which, resting on no sure foundation, are soon exposed in all their weakness to the scorn of those experience has taught them to think and act in a different manner.

It is not, however, to such persons we would at present allude ; for although these have but too often proved to be the real "pests of the farm," still there are, even within the the ranks of what we must call the practical men, many instances of insufficient qualifications for the important duties they have undertaken to perform. Perhaps one of the most essential points in farming is forethought. There are many who cannot see an inch beyond them, their powers of perception are confined to the narrow limits in which they stand for the moment, and farther than those limits their mental vision cannot by any means be brought to extend. Their minds can seize rapidly enough on any project which appears likely to be productive of immediate benefit, but they cannot by any process of ratiocination bring themselves to perceive the future results of any present movement. This obtuseness of their perceptive powers is the fertile source of innumerable errors, and prevents them from turning to their future advantage many circumstances which are calculated to be of advantage, but which they do not perceive to be such. For example, one one man looks upon the reclamation of a tract of waste land as a hopeless measure ; he understands just so much of it, as to know that a considerable immediate outlay is involved in the proceeding, and for that reason, he at once sets down the project as unattainable and absurd. Another individual, however, forsees that the outlay necessary to accomplish this object will, if properly conducted, be the means of returning him a profitable remuneration. He studies attentively every feature of the case ; he foresees almost step by step every part of the necessary procedure to be taken ; aud he sets about his work in full confidence as to the result. But, although such a man may demonstrate the correctness of his views, it does not follow that his neighbour, who, possessing less forethought, had considered the undertading as being only the means of throwing money away, until the effects produced convince him that his opinion was founded in error—it will not we say, always enable such a man to follow the example shown him with an equal degree of success. He may, indeed, attempt to imitate the process : in all probability he begins his operation in a proper manner, but some unexpected obstacle occnrs which he cannot understand how to overcome ; he overlooks some important step in his haste to arrive at final results, and he is obliged to abandon the undertaking in despair, in all probability attributing to what he calls *luck* on the part of his successful neighbour, what is due only to the exercise of judicious forethought, combined with perfect skill.

But the profitable exercise of this faculty is not confined to the case with which we illustrated our views. In the every day business of the farm, many opportunities arise where losses are incurred, simply from not looking forward to consequences, or from not being able to arrange mentally, everything which it is necessary to bear in mind, so as to arrive at a correct and judicious course of procedure. Now, in the apparently simple matter of setting a band of farm labourers to work, either in the general business of the

farm, or with the view of accomplishing by their united exertions some particular object, we have over and over again seen labour fruitlessly expended, time wasted, and money thrown away, which the exercise of a little forethought, based, of course, on practical skill, would have prevented. Assigning to every man his proper duties, and doing the right thing at the right time, seems to be with some people an unattainable accomplishment. No doubt every man is not constituted alike, but we believe that defective training is the exciting cause of most of the errors in management and the mistaken and circumscribed views which we meet with. The cultivation of habits of forethought is, in fact, an indispensable branch of education, without which, nearly every other acquirement is rendered of little value. A man may have learned Stephens, and Johnson, and Hodges by heart, he may have even laboured for years to acquire a practical knowledge of the business of the farm under the most favourable circumstances for acquiring such knowledge, but if, to use a homely phrase, he is unable to look an inch beyond his nose, he has yet to acquire that without which all his knowledge in other respects is merely a confused mass of nearly useless rubbish.—*Irish Farmers' Gazette.*

Fine Strawberries.—The best specimens of fruit, the largest, and the most highly coloured and flavoured, are always from these beds where the plants are kept thinned out to rows or "hills." If runners cover the whole surface, the fruit is smaller, more shaded, and the flavour is not in the highest degree of perfection. But the cultivated bed has one drawback,—the rain dashes the soil upon the fruit. This evil may be easily remedied by placing the short grass, which at this time is obtained by mowing lawns, between the rows. Tan has been recommended, and it does tolerably well, but it is itself not so clean as is desirable. Straw, chopped short, is used by some, and is cleaner and better than tan. But the soft, clean, fresh grass, only one inch or two in length, obtained from lawns, is much preferred to either, and it is easy and frequently renewed. The moisture which it assists in retaining in the soil, promotes the larger growth of the fruit. If irrigation is applied, this covering retains the moisture in the surface soil, and prevents evaporation and crusting. We have known the fruit while ripening, to be doubled in size in 24 hours, by a plentiful supply of water, dropping on the plants, and the mulching given them is next best to constant watering.—*C. Gentleman.*

Thinning Plants.—Some crops can scarcely be planted too thickly,—for example the grass crop, which has been doubled in product by quadrupling the seed; and all the excellence of fine old seeded lands may be attained by thick sowing, when otherwise the growth would be course, harsh, and meagre. The same remark will apply in some degree to sowing corn for fodder. But other crops require *thinning*, or success cannot take place. Cobbet said, in speaking of the culture of cucumbers, that two plants in a hill would bear a smaller crop than one, three less than two, four less than three, until fifty plants would bear nothing at all! The remark will apply to all cucurbitous plants, as melons, squashes, and pumpkins—which are often allowed to grow too thickly. A single plant, (or two plants at most, so as to insure one in case of accident to the other) on a rich, well prepared, and well cultivated piece of land, with a space of six or seven feet, is far better than a larger number. The culture of turnips, and especially those of the ruta baga tribe, requires a bold thinning-out. A novice in the culture of these roots may be readily distinguished by his thick drills, who would be startled at the "frightful waste" of thrifty young plants, which the experienced cultivator boldly practices, and with such decided advantage.

Striped Bugs.—Notwithstanding we have heretofore published the following receipt, it will do no harm to place it again before our readers, for now is the time to head off these pests of the gardener, and save the vines. The receipt originated in the Horticulturist:—

"Dr. Hull, of Newburgh, raised a large crop of melons by the following process:—'Bugs were completely expelled by watering the plants daily with a strong decoction of quassia, made by pouring four gallons of boiling water on four pounds of quassia, in a barrel, and, after twelve hours, filling the barrel with water. The intolerable squash or pumpkin bug was thoroughly driven off by a decoction of double strength, containing a pound of glue to ten gallons, to make it adhere. The result was, a product of sixteen hundred superb melons, on less than one sixth of an acre of ground."

FALLOWS.

BY A PRACTICAL FARMER.

In the Book of Exodus, chap. xxiii., verses 10 and 11, we read: "And six years thou shalt sow thy land, and shalt gather in the fruit thereof; but the seventh year thou shalt let it rest and lie still." This was the law which God gave to the Israelites, and is the first intimation we have in the world's history, from which we may gather information relative to the requirements of the soil, and the early usages in agriculture; for I take it to be analogous to what is generally understood, in our day, to *mean* lying under fallow, or to constitute fallowing. Be that as is it may, it is certain that fallowing was practised, and was one of the reguar systems adopted in the management of land, from the earliest periods of which we have any record. It has, however, been reserved for a very recent age to make any great advances in fallowing, and to adopt totally different courses in the appropriation of land undergoing a fallow. The fallowing of land has now become a subject of very considerable scientific research, and is of immense agricultural importance, as upon the fallow crop depends, in the present day, the ultimate success of the whole system of modern farming. No green crop, no corn crop. The ancient idea of rest adopted by the Jews, pursued by the Romans, and all other nations adopting agricultural pursuits, has been nearly abandoned in this country during the past ha f-century; and instead of *rest*, the soil or land farmed is now made to bear enormous crops of highly nutritious food, thus providing most abundant supplies for both man and beast in the season of winter, when so much is needed; and, at the same time, the soil is so much replenished with all those necessary constituents, as to ensure successful cereal cropping for several succeeding years.

What, then, are fallows? and what do we understand to constitute fallowing, in the present day? Fallows consist of all lands or soils which are undergoing the process of pulverisation, cleaning, aëration, and other amelioration, by the various means employed, either mechanical or otherwise, for these purposes. They are usually classed under several heads, or distinguishing modes of management—*i. e., winter or autumn fallows, summer fallows, bastard fallows, green-crop fallows;* to which may be added *trenching fallows, broadshare fallows, rafter fallows,* and the like; as also the various operations of *paring and burning, skim and skeleton ploughing, scarifying, subsoiling,* or other like means by which the process of cleaning, exposure, amelioration, or improvement of the soil is attempted or effected. The soil, therefore, which is subjected to any mechanical agency or order of management, for the above purposes, is under a certain course or character of fallowing, and accordingly, constitutes fallows.

What, however, are more commonly known as fallows and fallowing are those various operations of tillage which are carried on, and are indispensably necessary, to prepare the soil for a fallow crop (green crop)—*i. e.,* turnips, mangold-wurzel, rape, and the like—and these more continuous operations to prepare for the future wheat crop, being a bare or summer fallow, which on poor clays and some other soils is considered necessary. Winter or autumn fallows are those lands which have undergone various modes of tillage in the autumn, and are subsequently laid well up by the plough for winter aëration by frosts, snow, &c. Bastard fallows consist in the partial working and cleansing of the soil, prior to the putting in of the crop. Trenching fallows are the efficient trench-ploughing of the soil, for exposure to atmospheric influences, and are chiefly used prior to the coming of winter's frosts, by which it is much ameliorated and greatly benefited. Broadshare fallows are the breaking up of ths surface-soil for cleaning, by harrowing &c.; and to promote the speedy growth of annuals, in order to insure their ready extirpation. Rafter fallows are the ploughing of one furrow on to the adjoining strip, to promote aëration, &c., by more prominent exposure to atmospheric influences. Paring and burning, though not strictly coming under the appellation of fallows, are in fact a fallowing. The soil is pared, exposed, dried, burned, and spread, ploughed in, and well harrowed, by which course most of the intentions of fallowing are attained. Skim and skeleton ploughing are almost synonymous with broadshare fallowing. Scarifying fallows are the continual application of powerful drags or scarifiers, to move and expose the soil at a considerable depth, so that atmospheric influences may have greater effect.—Subsoil fallows are the breaking up of the subsoil at great depth, and bringing it near to the surface, for aeration, amelioration, and intermixture with the surface-soil, and is a wonderful improvement upon the old order of fallowing.

Take the astonishing fact as proved by the experiments conducted under the eye of Mr. Lawes. Good loamy soil contains a large superabundant stock of ammonia: required that it be brought into useful action in promoting the growth of plants. Here, then, we learn the true idea and benefit of fallowing. It is proved by Mr. L., that an acre of average loamy soil, taking it at one foot in depth, contains about three tons and a half of ammonia. The best Peruvian guano contains about seventeen per cent., or about equal to eighteen pounds to the cwt.; most of the home-made guanos and manures a far less proportion; and yet apply some of these to advance the growth of a crop, and the result is astonishing. The direct application of a few pounds of ammonia results in a surpassing accession of strength and power to advance vegetation and mature the crops, while at the very time the soil abounds in the identical constituent, and only requiring or waiting the skill of man to be made available. It is by deep, continuous perseverance in fallowing that this can best be accomplished. By this, we mean those oft-repeated deep stirrings of the soil, whereby the greatest number of particles can be brought into contact with the atmosphere, and laid open to the action of the sun, winds, rains frosts, dews, &c., and that without being run together by excessive rains, or compressed too much by field-rollers; in fact, the soil requires to be kept open, chequery, and friable during summer working, and at as great a depth as possible, consistent with the character and staple of the soil.

We often look forward in hopeful anticipation of the grand advent and full development of steam cultivation for this purpose. We are fully assured that our present appliances are altogether inadequate to bring out truly and fully the inherent and latent powers of the soil, in the limited time included in an English summer, without the loss of the green crop, which on no account can be dispensed with. We frequently find ourselves desiring the aid of all the horses in the parish (not a little on) to make proper use of the all-important time for fallowing. The doing enough in season seems an impossibility with our present means. We do bring to bear all the available power of the farm, besides occasional extraneous aid, and our crops equal those of our neighbours; but this is achieved mainly by the expensive additions of guano, superphosphate, or other similar applications, along with a very liberal dressing of farmyard dung. But this is not the all-important point: we want to gain more power, more nutritive food for the turnips and other plants from the existing stock in the soil itself; and this can only be done powerfully, and must chiefly be obtained through the intervention of deep, continuous fallowing or working the soil, in the precise, the exact season, when the sun, rains, winds and dews act most in conjunction and effectively. The greatest amount of heat and drought is required; but these would be nearly if not totally inactive without rain-water or distilling dews. Those of us who read a little, if but superficially, those works and papers of our agricultural chemists which are continually appearing in the public prints, learn that rain-water is one of the most powerful essentials yet known or discovered for setting free the ammonaical constituents in the soil, and preparing its wonderful powers for the food and nourishment of plants. These agriculiural chemists tell us that many of the component parts of solids have been subjected to the most intense chemical experiments, with the view of extracting their inherent values; they have been boiled in the most powerful acids known, without effect; but when the same or similar ingredients have been repeatedly, continuously subjected to atmospheric changes by the unremitted, free, deep working of the soil in fallowing, in the proper season and under proper judgment and management, these exceedingly valuable chemical essentials are by these means, aided most powerfully by occasional rains, disintegrated and rendered available for every farmer's use. It is to obtain these invaluable properties frow the soil that ought, and ultimately will constitute the chief design and aim in fallowing land; while, at the same time, the soil by these various operations is much better prepared to receive and render most available those deposits of manure which every farmer's judgment will dictate the application thereof to advance his growing crop, and to ensure it from loss or injury, as the quicker its growth in its early stages the greater safety.

In my next paper or papers I will endeavour to show what constitutes fallowing, or what are the tillage processes necessary to constitute a good fallow. Under this new idea and order of management I also propose to enquire how the soil can be well managed, and good farming can proceed without fallows, particularly according to the present mode of fallowing. I also propose to enquire if fallows and fallowing, as now practised, shall be abandoned, and what system will supersede this practice; and further, to inquire if good green crops can be generally grown without such fallowing.—*Mark Lane Ex.*

PIE PLANT.

The *Country Gentleman*, in reply to a correspondent who wished to know the best varieties of the Pie Plant, mode of cultivation &c., gives the following hints on the subject:—

"Many new varieties of the Pie Plant are constantly springing into existence, every plant from seed varying more or less from the parent. The Tobolsk is an early, red variety; the Giant is a large, later, green variety; these are the two leading old sorts.—There are many newer and more approved, among which Downing's Colossal is highly esteemed for its excellence, and Cahoon's for its great size. There are now many others of high merit, under experiment. Our correspondent should however observe, that there is less difference in the inherent tendency to large growth than many suppose, great size depending on the depth, richness, and cultivation of the soil—or as we have heard a skilful gardener remark, "tell me how much manure and deep digging you have given your plants, and I will tell you whether you have the large kind or not."

When Pie Plant is raised from seed, it should be planted very early in the spring, and as the seed is about a month in coming up, a few radish seed should be mixed with them, to mark the row, and show where to hoe. The radishes will be large enough to use before the rhubarb has attained much size. It will require three years for the seedling pie plants to be ready to use. Although seedling plants will vary in character, yet from fine sorts all will be good. To preserve the exact identity of any variety, the roots must be divided in autumn by cutting each eye separately, and planting out about two inches below the surface, protecting them through winter by a few inches of leaves. The second year they will do to use. They may be divided about every three years, the time varying however with the richness of cultivation. The size will depend much on their having plenty of room—which should not be less than two feet in the row, and the rows four feet apart.

Report on the Murrain of Cattle.—The report of Dr. E. Headlam Greenhow on the murrain in horned cattle, and the effects of the consumption of their flesh on human health, has been sent in to the General Board of Health, and since printed. It forms a blue book of 60 or 70 pages. The learned doctor gives a lucid account of the disease among cattle as manifested in England and on the continent. The result of his inquiry is, that the cattle disease which he was desired to investigate, is not of recent origin, but has prevailed in the United Kingdon among horned cattle for the last 15 or 16 years; that it is not peculiar to London; that it is probably infectious, but is also developed spontaneously in consequence of some unknown peculiarities of breed, management, season, or locality, and is not supposed to have been imported from abroad; that it is identical with the *lungenseuche*, or pulmonary murrain, now prevalent in Mecklenburg, Holstein, and elsewhere; and that it has no affinity with the *rinderpest*, or steppe-murrain, with which it has been confounded by some English writers. The doctor suggests that the importation of the steppe-murrain (which would be most probably by way of Prussia) should be prevented by the prohibition of the importation of cattle except from countries which have clean bills of health. It appears that meat derived from animals suffering from the pulmonary murrain, and probably other diseases, is commonly and extensively sold in London and elsewhere for human food, but that there is no satisfactory proof that the consequences of consuming it are directly injurious. There are reasons to suppose that the use of meat from animals suffering under diseases unknown among the cattle of the United Kingdom has, abroad, been frequently attended with severe consequences on human health. The consumption of meat undergoing decomposition has frequently been injurious and such meat cannot be eaten with safety even when cooked.

Education in Sweden.—We learn that a system of Public Schools is about being introduced in Sweden. The government is taking measures to improve teachers and schools, and to make the schools Public or Free. Friends of popular education will rejoice to see such a policy become general in the old world. The Agent of that government has shown his appreciation of one of the essentials of a good school, by ordering some School Desks from Boston. These desks are to be sent to the palace of Stockholm and will show royalty, what talent and skill, educated in public schools, are furnishing so generally for American children.

Simplicity.—Our life is frittered away by detail. Simplicity, simplicity, simplicity! I say, let your affairs be as two or three, and not a hundred, or a thousand; instead of a million, count half a dozen, and keep your accounts on your thumb nail. In the midst of this chopping sea of civilized life, such are the clouds, and storms, and quick-sands; and thousand-and-one items to be allowed for, that a man has to live, if he would not founder and go to the bottom, and not make his port at all, by dead reckoning, and he must be a great calculator, indeed, who succeeds. Simplify, simplify. Instead of three meals a day, if it be necessary, eat but one; instead of a hundred dishes, five; and reduce other things in proportion. Our life is like a German confederacy, made up of petty states, with its boundary forever fluctuating, so that even a German cannot tell you how it is bounded at any moment. Our nation itself, with all its so called internal improvements, which, by the way, are all external and superficial, is just such an unwieldy and overgrown establishment cluttered with furniture and tripped up by its own traps—ruin want of calculation and a worthy aim, as the million households in the land, and the only cure for it, as for them, is a rigid economy, a stern and more than Spartan simplicity of life, and elevation of purpose. It lives too fast.

Butter Cooler.—"Septimus Piesse," in the Scientific American, gives this simple method for keeping butter cool:—

Procure a large new flower-pot, of a sufficient size to cover the butter plate, and also a saucer large enough for the flower-pot to rest in upside down; place a trivet or meat-stand (such as is sent to the oven when a joint is baked) in the saucer, and put on this trivet the plate of butter; then fill the saucer with water, and turn the flower-pot over the butter, so that the bottom edge will be below the water. The hole in the flower-pot must be fitted with a cork; the butter will then be in what we call an air-tight chamber. Let the whole of the outside of the flower-pot be thoroughly drenched with water, and place it in as cool a spot as you can. If this be done over night, the butter will be as "firm as a rock" at breakfast time: or if placed there in the morning, the butter will be quite hard for use at the tea hour. The reason of this is, that when water evaporates, it produces cold; the porous pot draws up the water, which in warm weather quickly evaporates from the sides, and thus cools it, and as no warm air can now get at the butter, it becomes firm and cool in the hottest day.

To Sweeten Rancid Butter.—An agriculturist, near Brussels, having succeeded in removing the bad smell and disagreeable taste of some butter by beating or mixing it with chloride of lime, he was encouraged by this happy result to continue his experiments by trying them upon butter so rancid as to be past use; and he has restored to butter the odour and taste of which was insupportable all the sweetness of fresh butter. This operation is extremely simple and practicable for all. It consists of beating the butter in a sufficient quantity of water, into which had been mixed 25 or 30 drops of chloride lime to two pounds of butter. After having brought all its parts in contact with the water, it may be left for an hour or two; afterwards withdrawn and washed anew in fresh water. The chloride of lime used, having nothing injurious in it, can be safely increased; but after having verified the experiment, it was found that 25 or 30 drops to two and a half pounds of butter were sufficient.

How to head the Bugs and all the Vermin that Destroy your Vines.—Take six inch siding, slit it into three inch strips, tack them together and place them around the vines, with a pain of glass over them. If the glass fits the frames on the top, all controversy is at an end with the bugs; besides your plants will be much benefited by an increase of heat. I have just placed fifty frames over my vines and find it effectual; while all other nostrums going the rounds, such as flour and pepper and other things not a little nasty, I have given repeated trials and found unreliable. Try the eight by ten frames, they will cost you less than sixpense, and you may leave and return home, without the mortification of finding your hopes of a crop of melons blasted.—H. N. L.

A Hint about Potatoe Tops.—A New York potatoe cultivator says:—"The potatoe itself exhausts the soil but very litle, as its elements are derived mainly from the atmosphere—but the potatoe top exhausts more than any other one vegetable, as its elements are derived more from the soil. Potatoe tops then, should all be carefully buried when and where they are dug. If this practice were universally followed, no crop would exhaust the soil less. Let the farmers try the experiment, and write the result for the benefit of others."

Is There a Maelstrom?—This question is thus answered by a contemporary. Every school-boy of the last century has been taught to believe that there is a wonderfull vortex on the coast of Norway, with an eddy of several miles in diameter, and that ships, and even huge whales, were sometimes dragged within its terrible liquid coils, and buried forever "in ocean's awful depths." A corresdondent of the *Scientific American* says;

"I have been informed by an European acquaintance that the maelstrom has no existence. A nautical and scientiffc commission went out and sailed around and all over where the maelstrom was said to be, but could not find it: the sea was as smooth where the whirlpool ought to be as any other part of the German ocean."

We presume the above is correct. The latest geographers and gazetteers barely allude to the maelstrom, Colton, in his large atlas, gives the site upon his map, but does not allude to it in his description of Norway. Harper's Gazetteer, in his article on Norway, says that, "among the islands on the west coast there are violent and irregular currents, which render the coast navigation dangerous. Among these is the celebrated *Mael-Strom*, or Meskenaes-Strom, the danger from which has been greatly exagerated, since it can, at nearly all times, be passed over even by boats."—The romance of the maelstrom has been pretty effectually destroyed.

Recipe for Prosperity.—A gloomy correspondent who signs himself "Merchant's Clerk," writes to the *Journal of Commerce* that he believes we are on the eve of a general grand financial smash-up The editors endeavour to soothe his apprehensions, and add the following excellent suggestion:—

"Merchant's Clerk does well to keep a bright look-out for the future; but if he will eschew stock speculations, fast horses, fast women, costly segars, mixed drinks, the theatre and billiard rooms; will dress economically, spare a portion of his surplus earnings for the gifts of a true charity, and deposit the remainder in a savings bank; avoid unprofitable companions, keep the Sabbath, go to bed early, and devote his time, his thoughts, and his energies, to the interest of his employers, we will insure him against the effects of the most severe commercial revolution."

No person ever planted a tree, without feeling that he had rendered an important service to the community.

Nature, where she plants a vegetable poison, generally provides an antidote, so in the moral world, she causes sympathies to spring up by the side of antipathies.

Outward politeness can be learned in set forms at school, for, at the best, it will be hollow and deceptive; genuine politeness, like every thing else genuine, comes from the heart.

Genius.—A contemporary, in dilating on genius, thus sagely remarks:—The talents granted to a single individual do not benefit himself alone, but are gifts to the world; every one shares them, for every one suffers or benefits by his actions. Genius is a light-house, meant to give light from afar: the man who bears it is but the rock upon which the light-house is built.

Lampass.—All young horses are subject to the lampass, and some suffer extremely before it is discovered.

It is a swelling or enlarging of the gums on the inside of the upper jaw; the growth is sometimes so luxuriant as to prevent a horse from eating with any comfort. The cure is simple; and after being performed, a horse will improve in his condition with great rapidity.

Take a hot iron, flat, sharp, and a little crooked at the end, burn the lampass out just below the level of the teeth, using great care to prevent the hot iron from bearing or resting upon the teeth. After the operation is performed, the horse should be given a little bran or meal, with a small quantity of salt in it.

Some farriers have recommended cutting for the lampass, which only gives momentary relief, and would require the same operation to be performed every three or four months; but when it is once burnt out, it never again makes its appearance.

A Tribute to the Horse.—John Wall's Receipe.—Take half a pound of saltpetre, half a pound of alum, and half a pound of alum salt; pulverize and mix them well together, and every eight days give him a table spoonful in his food; his coat, flesh, and spirits will soon reward his master for his care.

EDITOR'S TABLE.

To Our Friends.—We have now sent out several extra sheets with the *Agriculturist*, and shall continue to do so until the end of the volume. The extra labour and expense we have imposed upon ourselves by this arrangement has been considerable,—more, indeed, than we anticipated before we undertook it. We derive no benefit, that we are aware of, by supplying our subscribers with *two* publications at the price of one, unless it results in an increase to our subscription list. The County and Township Agricultural Societies especially ought, we think, to patronize the *Agriculturist*, now that we give them the official reports, prize essays, and "Transactions" of their principal organisations, the Association and Board of Agriculture. Yet a large number of Societies do not supply their members with the information contained in these publications, although it may be had at little more than the cost of the white paper. Why is this? Do not Directors forget or neglect a part of their duty when they fail to place this information in the hands of every member of their Society? We have still a considerable number of copies of this year's edition on hand, as well as accompanying sheets of Transactions, which we shall be glad to supply to Societies that have not yet sent in orders. Will not our friends, *individually*, aid us also by recommending the *Agriculturist* to their neighbours?

South Downs.—We learn that Mr. John Spencer, of Whitby, has just received another supply of improved South Downs from Dorsetshire and Hants., England. They were selected with much care by his son. Mr. Spencer's sheep have carried off prizes at several of our Provincial fairs.

The Prize List.—The prize list accompanies the present number. We expected to have received it in time for the last number, but after waiting two or three days, we were obliged to send out the June number without it. Some subscribers may have supposed they were specially overlooked when they found the "list" had not reached them, but the deprivation was general. We sent off the parcels to Agricultural Societies, &c., as soon as the copies were delivered to us, but to have mailed them to subscribers generally would have entailed much trouble and considerable expense We hope they will reach intending competitors in time to enable them to make all needful preparations.

☞ Subscribers whose papers fail to reach them will be good enough to notify us at the first opportunity, and we shall always be happy to supply the missing numbers. We are obliged to trust a part of the work of mailing to employees, who may not always be as careful as we could wish.

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The Canadian Agriculturist.

VOL. IX. TORONTO, AUGUST, 1857. No. 8.

THE WHEAT CROP.—MIDGE.—WHAT SHALL BE DONE?

From nearly all parts of the Upper Province we hear the most alarming accounts of the ravages of the "Midge"—that most destructive of all the insect enemies of the wheat-grower. In the counties of Kent, Lambton, Middlesex, &c., it has proved more disastrous this year than ever before, if the accounts that have reached us can be relied upon. In the counties of Lincoln, Welland, and Haldimand, its depredations have deprived many a farmer of his bread. East of Toronto, in the counties of Durham and Northumberland, bitter complaints are also made of its blasting influences. The counties of York and Peel, and the county of Simcoe, so far as we have been able to learn, have escaped with slight injury. There is something remarkable in this apparent immunity. The *Midge* has devastated the wheat fields East, West and South of these counties, but has given them a mere taste of its quality. To what is this owing? The superior culture, the better varieties of wheat, or the geological character of the soil? Geologists tell us that the tract of country embraced within the counties of York and Peel, and part of Ontario, is of a different character from that on either side. Our soil is a drift deposit of immense thickness, averaging about 200 feet. The rock which underlies this drift is called the Hudson River group, or Lorraine shales. The Niagara limestone bounds it on the west in the county of Halton, and the Trenton limestone on the east in the county of Ontario. We do not even give it as our opinion that the peculiar geological character of the soil in this neighborhood has anything to do with the attacks of the "Midge"; still if a particular tract or belt of country is found to have escaped for a succession of years, and if that tract differs geologically from those which suffer, the fact is well worthy of investigation.

It is much to be regretted that no steps have been taken to ascertain exactly and reliably the extent of these insect depredations in Canada; the townships most subject to the pest; the kinds of soil, varieties of wheat, and system of cultivation which it seems to prefer; and on the contrary, those soils, varieties of wheat, and modes of culture which seem to preserve from its attacks. As we have remarked on former

occasions, a mere essay or compilation of the history and peculiarities of this insect to be found in the writings of Harris, Fitch, Kirby, and others, will prove of little value. We have read them all and so far as prevention or remedy is concerned, find ourselves but little wiser for our pains. What the country wants, is the organisation of a system of observation and experiment, to be carried on for a series of years in each township. The observers might be selected from the most intelligent members of Agricultural Societies. They should be furnished with specimens in the *fly* as well as the *larva* state of the various insects to be noticed, together with a short description, and their proper scientific as well as popular names. A formula should be drawn up as a guide to each observer, so that results may be properly recorded and classified. If any remedy exists, if any means can be adopted to rid the country of this pest, or to check its progress, this is the way to find it out, and secure for it when announced the public confidence. When will the Bureau, or Board of Agriculture move? How long must the farmers of Canada wait to see the fruit that was promised when these departments were established?

The injury which Canada will sustain this year from the depredations of the *midge*, may be estimated at millions of dollars; next year, as we have every reason to fear, it will be worse. Some have recommendeded the total abandonment of wheat culture for two or three years. This remedy may indeed be the only one that will effect a cure. But has any one counted the cost; have the consequences been duly considered? It is estimated that we exported last year, about nine millions of bushels, at an average price of a dollar-and-a-half per bushel. Now, what will be the effect upon our industrial interests, upon our trade and commerce, upon our public improvements, upon our financial credit, at home and abroad, upon the public revenues, which an extravagant legislature and a reckless government have pledged to their full amount for the next twenty years if this chief source of income be suddenly dried up, even though the drought last but two years?

Mr. Mechi, the agricultural experimentalist, naively remarks in a book he has lately put forth, that "a month's holiday to the British stomach would settle all our manufactures, commerce, and philosophy." And, an English politician once suggested as the only remedy for the political grievances of a certain troublesome community, that the Island they inhabited should be submerged for about fifteen minutes! The cure proposed in our case, appears to belong pretty much to the same category. That our farmers have, for some years, grown too much wheat in proportion to other crops; that they have not prepared their fallows with sufficient care, frequently growing wheat *after wheat*,—which we believe is the chief cause of the rapid increase of insects—must be admitted, and we think it will be found that in sections of the country where good cultivation is practiced, where the wheat stubble is ploughed in the fall, and *ploughed deep*, where wheat is never allowed to follow wheat, and where hardy varieties are generally sown, the insect gives but little trouble. Of course, the advantage of such a plan cannot be fully ascertained, so long as farmers here and there, adhere to the old system. One field in a township allowed to stand as a breeding-patch for the *larvæ* of the midge, will be sufficient

to perpetuate the species to an injurious extent, and probably nullify every attempt to procure its extinction. Any remedy of this kind, therefore, to be effectual, must be general. Hence the necessity for the aid and the interference of authority.

THE WHEAT DESTROYERS.

The subject of insect depredation appears to excite a greater interest this season among the wheat-growers of Canada, than at any former period. The obvious reason is that those depredations have come to be serious for the present, and alarming for the future. As appears from communications in the newspapers, a good deal of misapprehension still exists as to the kind of insect now doing the mischief. The most common mistake is that of calling it the *weevil.* If this name were popularly applied to the same insect, the mistake would be of little consequence. But we notice that it is applied indiscriminately to the larvæ of the midge, and the wheat-moth, or caterpillar. This creates confusion, and renders the statements as to its operations of little or no value for the purpose of estimate, comparison, or scientific enquiry. We shall state in a few words the peculiarities of these three insects,—the Weevil, Midge, and Caterpillar. We had hoped to have presented, in this number, engravings of each of these insects in their *fly* as well as *larvæ* state, but the only wood-engraver within reach, could not, on account of illness, prepare them in time. Probably they will be given in our September number.

The Weevil (*curculio granaria*) of Linn., (*calandra granaria* of modern entomologists) is so seldom seen in this latitude that it is unnecessary to describe it at much length. The perfect insect is a slender *beetle*, of a dark and pitch-red colour with a long slender snout, a punctured thorax, and furrowed wing-covers. In the Southern States, wheat stored in mills or granaries suffers considerably from its attacks, but it is seldom seen as far north as Canada.

There are several *Grain-worms*, or caterpillars. The kind we have noticed in our own fields,—and the same appears to have extended over a large part of Canada—is apparently the *Tinea granella* of European entomologists. The moth or miller lays its eggs on the grain, and the grub or worm when hatched feeds on the grain. Each worm appropriates a kernel to himself. It is said that rye, oats, and barley are subject to its attacks as well as wheat. The worm of this moth, says Dr. Harris, "is a soft naked caterpillar, with sixteen legs, and measuring four or five-tenths of an inch. The colour is a light ochre or buff colour, with a reddish head." We may add that the specimens we have examined have three whiteish lines along the back. They spin a web, though we have never found them "enveloped in a web" as mentioned by Mr. Gaylord in his essay, published in 1843. Though by no means a desirable visitor, they cause but little injury compared with the *midge.*

The Midge (*cecidomyia Tritici*) was first observed on this continent about the year 1828. It began its depredations in Lower Canada and the adjacent States. It has since extended over all the Northern and Eastern States, and within the last two or three years has invaded the great wheat-growing districts of the West. We have

seen no better description of this dreaded pest than that given by Mr. Gaylord in 1843, and published in the "Transactions of the New York State Agricultural Society" for that year. We shall copy the substance of his remarks on the subject.

"The wheat fly is in form somewhat like a musquito, only smaller; body orange colored; legs long and slender, as usual with the gnat family; and the wings transparent, changeable in color, or reflecting the colors of the rainbow. Having had frequent opportunities of examining the parent fly of our grain worm, which agrees well with the description given by Kirby and Spence, we think it the same insect—one that has been known and described in England for nearly one hundred years, It is possible, however, there may be some shades of difference, but their appearance and habits as described by Gullet and Masham, (see Dr. Harris, page 437), are so like ours, that they may be considered the same for all purposes. These flies make their appearance in June, or at the time wheat is usually in blossom, in great numbers, and are most active in depositing their eggs immediately after dusk; few being found in the day-time, or after nine o'clock in the evening. In the day-time they are secreted among the leaves and stems of the grain, rarely coming forth until after sundown. The female is provided with an ovipositer, or retractile tube, which she thrusts with her eggs between the scales of the chaff, depositing them in clusters from five to twenty. In some instances from thirty to forty larvæ have been found within the chaff of a single grain. The larvæ when first hatched are colorless, but they soon become of a deep orange, or bright rust color; are true maggots without feet, working their way with difficulty from one place to another. They gather around the central point of the chaff where the formation of the kernel commences, and completely nullify or destroy the grain. When full grown, the maggot is about one-eighth of an inch in length. Some few are changed to the pupa state in the ear, but the greater part fall to the ground, where they finish their transformations, and appear in the spring or summer as perfect insects, ready to deposit their eggs on the growing wheat crop. So great and wide-spread has been the damage occasioned by this insect, that ample opportunity has been had to try all the preventives usual in such cases, and we are sorry to say with very little effect on the whole. Fumigating the fields with sulphur, or smoke from any other materials will retard their action for a time, and could they be continued might destroy them. All pungent odours are offensive to the grain fly, as they are to the musquito, and that most offensive of all odours, the one proceeding from the skunk, has been tested, and highly recommended as a preventive. Quick lime strewed over the field while in blossom, has been highly recommended by Mr. Colman and others, but its success does not appear to be uniform, perhaps owing to its not being applied at the proper time or in sufficient quantities. A half bushel of lime mixed with the same quantity of ashes, and sown on an acre, has produced good results. In the case where lime has failed, Mr. C. has suggested that the sowing took place too early, and that two or three sowings might be advisable, so as to certainly cover the time of the fly's appearing. A friend who is an extensive farmer in Rensselaer county, N. Y. assures us that the present year, wheat sown early in autumn, and which of course came forward early in the spring, has wholly escaped the grain worm, while the late sown has suffered materially; and that his experience in former years has convinced him, the same will hold good as a general rule. Where spring wheat is sown, it is found the early sown suffers the most, it being in blossom at the right time for the action of the fly. Sowing spring wheat as late as it will ripen, say the 10th or 15th of May, will save it from the worm; but such late wheat is very apt to blight, and be of inferior quality. Perhaps, where the worm prevails, giving wheat up for a short time, taken in connexion with burning stubbles and deep plowing, would be the safe course."

Bones as a Manure.—A late number of the *Country Gentleman* has an elaborate article by Levi Barlett, of New Hampshire, on bone manure. He concludes that there is no other manure whose effects are so lasting as an application of ground bones. Besides the increase of crops he says it supplies phosphate, which grasses generally lack, on old and long grazed fields in New England, and the want of which, cause what is called "bone disease" in cattle. Mr. W. recommends that the bones be pounded, and thus broken to pieces, boiled or ground, and then spread evenly over the soil, and mixed with it. He has a field that was thus dressed years ago, and the effect is yet very perceptible on clover.

AGRICULTURAL BOOKS AND PERIODICALS.

Germany and Great Britain are the only countries which afford a market for works on Agriculture.—In France the mass of the people scarcely ever read any thing except light novels. But books on farming, printed in the French language, find a market, because that language prevails throughout Europe, especially in the farming districts of Holland and Flanders. Russia and Hungary scarcely possess a work on the subject,—and Spain and Portugal have never succeeded in supporting any permanent or periodical work on culture, although entirely dependent on vine culture for prosperity. Italian books are circulated in the south of France, and Spain, and in Spanish America,—Scotland finds the Authors and Publishers, and England finds the readers,—England forms the example and model farms, and Scotchmen direct and control them. So with regard to Agricultural Implements, the Scotch are for the most part the inventors, improvers, and modellers, and the English the manufacturers, buyers, and users. In North America, Agriculture engaged the attention of Authors, as early as 1744, and from that time to this, the United States have published continually some of the most useful works, have invented the best labor-saving machines, and reprinted all the best European works on the subject. Scotland has produced the best authors, as Stephens, Loudon, Morton, Lindley, and has become tutor, with England and America for its pupils. Germany has furnished almost all the most eminent Chemists, who have specially devoted their studies to chemical analysis of vegetable matter, soils, and minerals, as Liebig, Voilckner, &c. The result of all research, and chemical analysis has been to elicit the following facts, corroborated by statistics :—

1.—That all soil however rich becomes gradually less and less fertile, so long as it is uncultivated, until it becomes absolute morass, moor or marsh, or impenetrable forest.

2.—That soil covered with forest trees retains its luxuriance for the greatest length of time, and when cleared of the forest, proves the most durable of any for the purposes of cultivation.

3.—That on land uncultivated, Nature maintains to a certain extent a regular rotation of crops, each plant in succession gradually diminishing in size, until the barren moor is all that remains.

4.—That pasture land when neglected, (though of the richest quality), gradually decreases in value, until it produces only the most worthless and valueless grasses.

5.—That the plough, labor, and a scientific use of manure will restore any land, even the most worn-out, to its original staple quality.

6.—That to maintain land in its proper, and original staple condition, manure must be supplied in proportion to the properties exhausted by the crops, and that such replenishment of exhausted properties, can only be contrived, (except under special circumstances), by a judicious rotation of crops, and by the economical use of the various reproductive substances everywhere provided by Nature.

Experimental farming has proved all this, and a great deal more,—without which practical farming could never have been carried on. Scientific books have in times past, been for the most part used only by the experimental, or amateur farmer. But so great have been the advantages derived from the application of science, that practice without science has become almost as profitless, if not as ruinous, as science without practice. It is on the union of practice with science that the success of the farmer must ever depend, so that farming now forms the most interesting, as well as

the most necessary subject for periodical literature.—Independently of the higher works already alluded to, of too expensive a character for a very wide circulation, America issues no less than 100 periodicals almost exclusively devoted to the farm, including the *Canadian Agriculturist*, which is the cheapest farming journal extant. In this the New World, would seem to take the precedence of the Old, but when it is recollected that Canada trebles England in extent, and every person in the country is is or may be a land owner, it is a matter of surprise that the *Canadian Agriculturist* is not issued every week, instead of every month, and as eagerly looked for as the *Mark Lane Express*, or *Bell's Weekly Messenger*, or the more scientific but scarcely less practical *Gardeners' Chronicle and Agricultural Gazette*, all of which are full-priced papers. There is also the *Magnet*, a cheaper paper issued in London, at 4d. a copy, and the Irish and Scotch weekly papers, also full-priced. Their united circulation will be found to exceed 60,000 copies, a week, and to be supported by annual subscriptions amounting to some £75,000 Sterling, or to $375,000. The whole of British North America does not subscribe towards farming literature probably more than £1000 currency.

NOTE BOOKS v. MEMORY.

Observations on the seasons and weather are essentially necessary especially in a climate, like that of Canada, supposed by many theorists to be undergoing a change, as the country becomes clear of forest, year by year. John Young, an English author asserts that "the climate of Europe was 2,000 years ago, precisely the same as that of the greater part of British America at the present day," and argues that the amelioration of climate is as certain to progress with the cultivation of the soil and consequent decrease of forest, and with the increase of cities and population. Severe winters, however, are as much the characteristic of Canada as before, while extreme summer heat seems, in some measure, to have declined cold springs and wet weather in May and June, are becoming, it is said, of more frequent occurrence. The present season is one of the most extraordinary in this respect, ever remembered. In England it is safer to trust to memory, than in a new country. There are numerous marks, by which to remember the exact times of sowings, mowings, reapings, and the setting in of winter, such as the fixed feast and rent days of Lady Day, Midsummer Day, Michaelmas Day, and Christmas Day, invariably falling on the 25th of March, the 24th of June, 29th of September, and 25th of December. By these divisions of time, the farmer recollects, that in 1843 he had not cut his corn by the 29th of September, and rent day came, with nothing got off his farm, wherewith to make his payment. In Canada, with no rents to pay, few regular fixed fairs, and fewer annual and periodical meetings, it is more essential to note every thing that may be a guide to the future. In England, a wet season like the present would almost invariably lead to a bad harvest. Few of the cereals, without extraordinary care, and without the use of antidotes to the injurious effects of continued wet, by underdraining and top dressings from artificial manures, would come to ordinary perfection, and light samples, or rusty corn would inevitably be the rule, more or less,

as the after season improved. In this drier atmosphere, the same mischief may not ensue, and indeed a wet season here may possibly prove a good one. "A dry summer never begged its bread," is a proverb many an old countryman will remember,—and it is one of the truest ever uttered, heavy samples of wheat and large burthens to the acre invariably follow, while hay crops, and root crops may fail, compensated in general, in some measure, by a heavy supply of aftermath in the fall, and generally by a long, dry, and fine autumn. The compensation for a wet summer, and light crops of cereals is of course, an abundance of pasture, and every kind of root crop, but not of pulse, which is usually full of maggots in wet seasons. A daily note of the condition of the weather,—the work done on the farm, would occupy about five minutes, and every farmer would find it of incalculable use for the future,—to mark the progress and results of singular seasons like the present, and compare them with ordinary years.

ENGLISH IMPLEMENTS IN HUNGARY.

At the recent great Agricultural Show at Buda-Pest in Hungary, a number of English implements, as well as live stock were exhibited. The following notice of the show is from the correspondence of the Mark *Lane Express*:—

The show commenced on the 6th of June, and virtually finished on the 11th; but three days more were occupied in the distribution of the prizes, and the sale and disposal of machinery. So strong was the desire to do business, on the part of the Hungarians, that several of the English exhibitors were occupied up to the last hour, either in taking orders or in sending away what they had sold. It was remarked by several of the leading visitors that, had it been known that the English intended to appear in such strong force, and make such an excellent display of implements, a much larger number of the Hungarian cultivators would have been present. The desire is very great, on the part of the latter, to possess themselves of labour-saving machines of the best construction from the necessity of adopting the most economic means of cultivating the soil, now that the peasant is free, and hand-labour exceedingly scarce and high-priced.

The exhibition of English machinery and implements was exceedingly good. We shall simply enumerate the leading exhibitors and objects, as they are all well known and do not call for particular notice at our hands. Clayton and Shuttleworth exhibited thrashing machines and engines; Ransomes, thrashing machines, engine, crushing mills, chaff cutters, ploughs, and harrows; Garrett, thrashing machine, drills, and horse-hoes; Howards, ploughs, harrows, horse-rakes, and horse-hoes; W. Dray & Co., crushing-mills cart, corn-dresser, chaff-cutters, rakes, and steam-cooking apparatus; Coleman, cultivator; Barrett, Exall & Co., thrashing machine and engine; Smyth & Son, drills; Davy, Brothers, engine, and thrashing machine; Burgess & Key, improved M'Cormick's reaper; and Hornsby and Sons, thrashing machine, drill, and engine.

The jury paid great attention to the several essays (trials) made by the machinery and implements. The thrashing machines all did their work well, the difference between them we have endeavoured to indicate in our preceding remarks. There were two circumstances, however, connected with the trials, which are deserving of special observation, as they stand out so prominently from the general proceedings, and certainly each, in its way, excited a very large amount of interest. The trial of Howard's ploughs was one, to which we have already alluded, therefore we shall not attempt to describe the excitement and interest which they awakened throughout the duration of the show; and the trial of the reapers was the other, which we shall now more specially refer to.

Next to the plough there is certainly no machine or implement that is more required in Hungary than the reaper. The scarcity of labour on the one hand, and the impossibility of gathering in the corn on the other, large quantities of which are annually lost on the plains in the south of Hungary, has imparted an extra interest to the practical powers of the reaper; therefore it may be imagined that the trial, to which we now briefly

allude, must have excited great attention and would be watched with the most intense anxiety by the Hungarian proprietors.

The trial took place in a field of rye, about four miles from Pest. So great was the interest excited, that the Archduke Albert and several of the leading functionaries of State attended, to watch the proceedings and report the results. The field, it is almost unnecessary to remark, was crowded by the leading landed proprietors and farmers, who had bought largely of machinery for agricultural purposes, and who paid great attention to the respective operations of the reapers.

There were only three reapers on the ground; one by Baron Ward; a second by M. Szabo, of Pest; and the third, Burgess & Key's improved M'Cormick. Sometimes the reapers were drawn by oxen, and sometimes by horses, in order to test their working power under different circumstances. M. Szabo's machine very quickly got choked, and had to retire from the field; and we have some recollection of having seen one of similar construction, exhibited by Wray & Son, at Gainsborough, in 1852. The delivery is by endless bands, moving horizontally; but the Pest machine did its work in so clumsy a manner, and required such a heavy draught, that it was at once pronounced a failure. Baron Ward's machine, which we have already described in our notice of the trial at Flinsdorf, did its work very fairly; but, independent of being heavy in draught, and frequently leaping right over the corn, and leaving large patches not cut, but trampled down, requires two men to rake off what it cuts; and such is the severity of labour, that no two men of ordinary strength could last a couple of hours at such work. The Archduke pithily remarked, that it would not be a bad machine if the Baron could only manage to do without his two men. There were four horses required to draw Baron Ward's reaper round the first cut, although the crop was by no means of a heavy kind, and four oxen the second and third; but after every effort to make it succeed on the part of all who saw it, it came out but midlingly from the trial. The interest, therefore, was naturally concentrated upon Burgess & Key's M'Cormick, and, as it had not worked at the Vienna show, great anxiety was felt as to the results of its operations. It is also just to remark, that great regret was expressed by several gentlemen, who had a deep interest in the question, that W. Dray & Co.'s reaper was not in the field, as it worked so much to the satisfaction of those who saw it at Flinsdorf. It appears, however, that it only arrived one day after the fair, by mistake, or by unavoidable delay. Burgess & Key's M'Cormick it is, however, but just to state, not only came up to what was expected of it, but went far beyond that point. After making one round with a couple of horses only (the horses are light in Hungary,) the approval of its working capacity was so marked, that there was not even the shadow of a doubt in any one mind in the field, as to its marked superiority over the others, and of its apparently answering the various requirements of such a machine in Hungary. This reaper did its work clean, easy, and in comparatively quick time, besides requiring much less draught, not so many men to attend it, and doing no injury to the corn. The Archduke, after seeing the reaper tried, first by horses and then by oxen, and quietly following it along the field, congratulated the representative of Burgess & Key, and emphatically remarked, that it was immeasurably the best machine there, and that it fully answered all the requirements that he could conceive of such an implement. On this declaration the whole company took off their hats and gave a hearty cheer, at being honoured by English machinery in assisting them in their field work. The success of this machine, as far as Hungary is concerned, was certainly of a very decided character.

High Farming.—Mr. F. Mechi, whose name is associated with the first triumphs of American reaping machines in England, which occurred on his farm at Tiptree, has recently written a little work called "How to Farm Profitably," in which he disposes, in a good humored manner, of all those who have taken grounds against *high farming.* He says:—

I have often been much amused by the compassionate look and manner in which my friends inquired after my doings at Tiptree. The translation of these sentiments is this: "Mr. Mechi, you are kindly losing money by your experiments to oblige the country, and we ought to feel grateful to you." But I sternly ejaculate that what does not pay in agriculture is not an improvement. The fact is, for several years I have been deriving a most gratifying return for my expenditure, and it is of a very enduring and continuous character; but the world does not believe it.

TRIAL OF REAPERS AND MOWERS AT SYRACUSE, N. Y.

This important trial came off as announced, and has, no doubt, resulted in much benefit to the agricultural interests of the country. Although it was held at one of the most busy seasons of the year, a large number of persons interested in agriculture attended during all the days of trial. It is to be hoped that arrangements will be made by the Agricultural Association, to hold a similar trial in Canada next year. It ought to have been done this year, for the number of machines—some valuable, some nearly worthless—that are now offered to the Canadian farmer, renders it very difficult for those who have not studied the subject to make a proper choice. We copy an interesting account of this great American trial from the *New York Tribune*. The final result will not be officially stated for a few weeks.

The great event has now been completely realized, the labours of the Jury have been brought to a close, and already the most of the members are on the way to their widely-separated homes. At this juncture, it is fitting to pass in review the objects sought to be attained in this trial, and see how far the careful examinations of the past week have tended toward establishing a worthy precedent for the trials of other Societies.

The important distinctive features of this trial are its magnitude, its national character the excellent fitness of the Board of Judges, the severity of tests to which the machines have been submitted, the thorough dynamometer trials, and the philosophical principles sought to be established in the investigations; and I propose to advert as briefly as possible to each of these in succession.

First, as to its magnitude. A few weeks since there was published in the *Tribune* a list of the notifications of entry, amounting to the very unusual number of *ninety-six* machines, coming from fourteen different States: and much surprise has been excited in the public mind that so many machines, adopted simply to gathering our grass and grain harvest, should actually be manufactured and absorbed by popular demand. We felt apprehensive that if the proposed competitors should actually fulfil their contracts, and present their machines upon the trial field, the Jury would be so embarrassed with the immense number as to be obliged to give only a very incomplete examination into their merits, and thus defeat the high expectations which the public entertained in respect to the thoroughness and impartiality of the National trial. The sequel proves, however, that it is much easier for a manufacturer to feel such high expectations of success as to make notification to a Society that such or such a machine will certainly be on hand to compete, and on sober second thought to bravely buckle on the armour and enter into the conflict; for of the ninety-five original entries, but *forty* have been made actual by the payment of entrance fees. This, although much less than was expected, is still a larger number than would be agreeable to the Jury, for to give patient attention to their separate characteristics they have been compelled to use great diligence, and have experinenced no little embarassment to the speedy progress of the trial. If, then it is fortunate that the number of machines in actual competition was less than was to be anticipated from the notifications of entry, how much more so is it that the fine haying weather prevented the attendance of five or ten thousand visitors. Even with a small proportion of that number the machines were followed by anxious crowds, and at times, the Judges were completely hemmed in by spectators. With such great disadvantges as these to contend against, what Jury can do its work in a decent and thorough manner? And is it all strange that, both to protect the crop against being totally ruined by being trampled under foot, and to give them full liberty to examine with care and attention the intricacies of construction and working, the Superintendent and Judge should issue peremptory orders to keep the crowd back as far as the boundary fences? The nationality of the trial is shown in the aims and objects of the United States Society, the different States whence were sent the competing machines, and by the selection of the members of the Jury. The States represented by machines were: New York, New Jersey, Ohio, Illinois, Massachusetts, Indiana, Maryland, New Hampshire, Vermont, Michigan, Pennsylvania, Texas, Deleware and Kentucky. If all the entries had been made good, their number would have been still greater; but those actually here prove how wide

spread has been the interest in the trial, and how important will the decisions be considered. There probably has never been called together a Jury on Agricultural Implements so influential, so competent, and so impartial as the one at this Fair. The Superintendent, Joseph E. Holmes, of Ohio, was Superintendent of Machinery at the Crystal Palace, New York.

The competitors felt some dissatisfaction that they and their teams should be kept sweltering under the rays of a July sun, while the Jury were quietly going on with their tests with the Dynamometer (or *Doxology* as one of them expressed to me). Some of them thought *draft* was not of much account, and could not be persuaded to cast a mental balance between so many pounds of draft and so many bushels of oats; but for all that Liebig, and Bence Jones, and Johnson, and every other person acquainted with the laws of animal life, maintain that all animal exertion produces waste of substance, and consequently the more strain is put upon the muscles in a day's work the more rapidly will a horse or an ox become attenuated and need new supplies of food. To show the agricultural public which of two or more reapers and mowers will cause the greatest loss in this way, and consequent drain upon the farmer's pocket, the Jury at this trial have quietly continued on the even tenor of their way and now at the end of their weeks work can show the records of a more perfect investigation into the construction and properties of reaping and mowing machines than was ever before made public.

The new Dynamometer (power-measurer) invented by W. B. Leonard, Esq., Secretary of the American Institute, is constructed as follows: A square box of cast iron, to the front and back plates of which are attached links for the appliance of the machine and the power used, contains at the bottom a piece of ordinary clock-work, the object of which is to give a constant revolving motion, to a circular table covered with leather.—Near the top of the box, on either side of this revolving table, are stiff spiral springs, which are fastened to the front and rear plates of the box. Directly over the revolving table is a spindle, the two parts of which slide upon each other, like a telescope, as the power applied draws out the spiral springs; and in the centre of this spindle is a brass wheel which revolves at right angles with the circular travel of the table. At the extremity of this spindle is a disk on which revolving hands mar by proper figures the total amount of strain made by the team. Now attach the team to the front link and the machine to the rear one of the box. The parts are drawn asunder, thus straightening out the spiral springs, pulling the sliding portion of the spindle and causing the upper brass wheel to pass off the centre of the revolving table, where of course, it previously was at rest, and to revolve itself by the forward travel of the table which it touches.—As this wheel goes round, it turns a pinion wheel at the other end of the spindle, and by an arrangement of one or two cog-wheels the hands go round the disk, faster or slower as more or less power is applied, and a perfectly accurate registry is made of the draft of the machine attached. This machine is most wonderful in its adaptation of mechanical principles, and after careful testing by watch and weights, has proved itself accurate and reliable. The machine sent to be used by the United States Society on this occasion should have been made entirely of wrought iron, instead of which the box and slides raised were nothing but brass and composition, and of course gave way before the rough usage to which they were subjected. If Mr. Leonard will make the box more durable, he will be able to give the public a splendid instrument, and one that is necessarily destined to come into general use. When the Leonard Dynamometer box broke, the Superintendent was fortunately enabled to borrow from Messrs. Emery Brothers, of Albany, an oil dynamometer which they had upon the ground. This instrument is a strong cylinder of iron, in which, as in a steam engine, there is a piston rod, in which is fitted a puppet valve and there is made a small orifice. The cylinder is filled with pure-strained oil, the piston introduced and the cap hermetically closed. At the end of the piston is one link, and at the other extremity of the cylinder another, to which are respectively attached the team and machine. As the power is applied the piston-rod is slowly drawn out at such a rate per minute per rod as more or less force is exerted, controlled by the oil being forced through the tiny orifice in the piston. When the machine has run a certain distance, by reference to the length of rod drawn out and time consumed, the actual draft is got at by the single rule of three. This, as well as the Leonard instrument, worked admirably, and lent much to the examination. The yoke for testing side-draft, which was invented for the trial by Mr. Holmes, the Superintendent, I have described in a former letter. It will suffice to say that it was shown to be correct and a valuable assistant.

Not only were the exhibitors obliged to go through the fiery ordeal of these tests, but the grain cut, and the uneven surface of the fields, all conspired to render the trial a most searching one. It was remarked to me by one competitor who had been to scores of trials in this country, and had even worked an American machine at the imperial trial in France, that this was the most rigid test he had ever been put to, and moreover, he had never competed with so many machines at once. The report of the Judges will be presented at the United States Fair at Louisville, Sept. 1, and from their intelligence and the close examination made by them at Syracuse, it will undoubtedly prove a most valuable acquisition to our manufacturing public. One thing is certain: the influence of this trial will be felt at all subsequent ones, and you may rely upon it, any uninformed carpers to the contrary notwithstanding that the trial has been, in the accomplishment of the object sought, a most decided success.

It will have the effect of showing the farmers of the United States, that although they may nourish predilections for certain machines because they do good work in cutting, yet the only test of their excellence is to be found in putting them under a rigid examination, based upon scientific principles, and every sensible editor and farmer in the country can do nothing else than feel respect for the initiative taken by Judge Gould and his associates.

One test applied to the machines was to make the team walk as slowly as they could so that they put one foot ahead of the others, and causing the cutter bar to go click, click, tick, click, like the pendulum of a clock. The Jury would take particular notice how the grass was cut at this slow motion. The team would be gradually stopped, and then started again without backing the machine. Some of the competing mowers utterly failed in this test, thus proving that a high rate of speed was required for them to perform their work, and the team would consequently be the sooner tired out.

Of the new machines on the list there is one, a self-raker of very excellent principle and simple construction, invented by the veteran Pells Manny, of Freeport, Ill. He is the father of J. H. Manny, and original inventor of the widely-known "Manny's machine." The old gentleman has succeeded, he thinks, in obtaining a reaper and mower much superior to his son's, and, old as he is, fearlessly enters the lists. The patriarch of all reapers, Obed Hussey of Baltimore, was here with a novel reaper, which cuts a swath ten feet wide. There is no raker needed with this machine, for the grain as it is cut falls upon a tilting platform.

When enough for a gavel accumulates upon the platform, a hand riding behind the driver pulls a long iron bent lever, and the platform is caused to tilt up and drop its load behind it, while the machine goes on its way. I am surprised that so experienced a man as Obed Hussey should come to exhibit a machine so manifestly imperfect as this mammoth reaper, and cannot wonder at his quitting the field after going once around his lot. Besides these, there was the "Illinois Harvester," invented by Jonathan Haines, of Pekin, Ill. This harvester cuts off only about 18 to 24 inches of stalk with the grain head, and by means of a laterally travelling endless apron and elevator, the grain is loaded immediately into a waggon driven alongside. With five hands and three teams, beside the two employed to push forward the machine, thirty acres of wheat can be well cut and stacked per day. The President and some of the Judges and reporters went down yesterday to see it put to work, and the opinion was unanimous that it was entitled to much praise for its excellent performance. It is not fit to cut oats or barley or grass, but simply wheat, and therefore will be principally valuable to large wheat-growers at the West.

We in New York have no conception of the extent to which these wonderful reapers and mowers are made and sold. Why, Sir! what must be your surprise when I tell you that one single shop in Illinois has turned out this year, so far, *four thousand six hundred and fifty one* combined reapers and mowers, which, at $145 each, the retail price for the average of the sales amounts to $674,395, *nearly three quarters of a million of dollars.* And a rival shop in the same State has made 4300 this year at the same price. Old Pells Manny told me that there would be 20,000 machines made in Illinois this year! The widow of the patentee of a certain popular machine has an income from the sales of $150,000 per annum. Is it any wonder then that manufacturers should gladly seize upon such occasions as this National Trial to enter for competition and bring their machines before the farming public? The fact is, the rush of emigration westward, and the

prevalent thirst for large farms, causes more land to be brought under cultivation than there is labor to till it, and to, in some manner, compensate for this crying want, the farmer has been supplied with these reapers and mowers already, and is each year craving more and more a steam plow. In view of these facts then, it will readily be understood that this Syracuse Trial is looked upon by manufacturers with great anxiety, and its decisions must exercise an important future influence.

One of the Judges, writing to an Agricultural Journal, gives the following as the names of the principal mowing machines tried :—

Nineteen machines entered the contest, as follows :—

1. Warder, Brokaw & Co., Springfield, Ohio—Ohio reaper and mower.
2. W. A. Wood, Hoosick Falls, N. Y.—Manny's patent with Wood's improvement—combined mower and reaper.
3. T. R. Hussey, Auburn, N. Y.—Hussey's combined machine.
4. W. F. Ketchum, Buffalo, N. Y.—Ketchum's mower.
5. W. A. Wood—Manny's mower with Wood's improvement.
6. Miller, Wingate & Co., Louisville, Ky.—Kentucky Harvester.
7. D. M. Osborn, Buffalo, N. Y.—Kirby's mower.
8. A. H. Caryl, Boston, Mass.—Heath's mower.
9. Rufus Dutton, Dayton, Ohio—Atkins's Automaton reaper and mower.
10. T. D. Burrall, Geneva, N. Y.—Burrall's mower.
11. M. Hallenback, Albany, N. Y.—Hallenback's mower.
12. Wm. H. Hovey, Springfield, Mass.—Hovey's mower.
13. Ball, Aultman & Co., Canton, Ohio—Ball's mower.
14. P. Manny, Freepart, Ill.—Manny's mower,
15. Ball, Aultman & Co., Canton, Ohio—Miller's mower.
16. Hull & Sanford, Poughkeepsie, N. Y.—Ketchum's improved combined machine.
17. Seymour & Morgan, Brockport, N. Y.—combined machine.
18. R. L. Allen, New York, N. Y.—Allen's mower.
19. Pruyn & Lansing, Albany, N. Y.—Newcomb's mower.

He adds,—"It appeared that lots enough had not been laid out in the field above mentioned, and it was therefore deemed expedient to try three of the machines in another field, which prevented the comparison of all under precisely the same circumstances.

There was a striking contrast in the character of the work performed by the different machines. A few operated in an almost unexceptionably manner and approximated closely to *perfect work;* others cut the grass nearly as well as is ordinarily done with the scythe, while others cut it in an inferior grade, down to leaving nearly half the crop uncut. My position as one of the Board of Judges, precludes my giving a comparative view of the machines, as to their working, and in other respects, until the awards have been announced. I do not think, however, that I transgress any rule of propriety by stating that the Heath machine, which took the $1000 prize in Massachusetts last year, has disappointed its friends in this trial. This should, perhaps, cause the exercise of some caution in regard to purchasing it."

Salting Hay.—We frequently find notices of salting hay, and also of the injurious effects, in many instances, resulting from it. We give from the farm report of L. D. Clift, of Putnam county, N. Y., in the volume of Transactions of the N. Y. State Society for 1855, a preparation that has proved highly beneficial, and obviates the difficulties attending the use of salt:—

"Preparation for Hay in the Mow.—I have used, for several years, the following preparation for my hay: *Two parts of slacked or quick lime to one of salt.* The salt to be mixed with the lime until dissolved and the mass becomes a powder. Upon a load or ton of hay, at intervals in mowing or stacking, use from ten to fifteen quarts, dusted evenly over the hay. I formerly used salt alone, but the men would often use too much, so that it was injurious to the stock. The above mixture obviates this—it corrects the acidity and sourness of hay, and I do not recollect a sick animal since I commenced its use. Horses troubled with the heaves are greatly relieved by feeding upon hay thus prepared, and I am satisfied it is a preventive of the heaves. My horses are kept in the stable the year round, well groomed, and they do far more work and wear longer than when suffered to run during the summer."

THE CURCULIO.

This insect is one of the most troublesome enemies with which the fruit-grower has to contend. It is sometimes known by the appellation of the gum moth, and ordinarily commences his attacks upon the plum tree early in the spring. Its appearance, however, depends in a great measure upon circumstances. Its eggs are deposited in the embryo fruit, and may be easily destroyed by a preparation formed of one bushel of wood ashes, one quart of soot, and half a pound of sulphur. The most favourable time for applying this is in the morning, when the foliage is wet with dew. The quantity applied should be sufficient completely to cover the leaves, limbs, and fruit. The application rarely, when properly made, fails to destroy the insects, though they are extremely shy in their habits, and are not easily got rid of by any other means.

In isolated positions and in places surrounded by salt marshes, the smooth-skinned fruits are usually prolific, and seldom subject to disease. This exemption is frequently experienced in cities and towns on the sea-board, and it has been remarked that trees growing in the vicinity of salt water—especially if near it—are rarely, if ever, attacked by the gum moth. On the contrary, the plum, the nectarine, the apricot, &c., fruits which are invariably infested by it in interior localities, and in open and exposed situations, are rarely injured by it when so situated as to enjoy the sea breezes, or the spray of the ocean during storms.

As a general thing, the curculio, though it will attack most fruits, seems to have a peculiar *penchant* or preference for those which are smooth and thin-skinned. Few of these escape its ravages. The various descriptions of the cherry, though to a limited degree obnoxious to its depredations, if growing in exposed situations, frequently escape. This exemption has been attributed by promologists to the superior hardness of the skin of that fruit, but I am inclined to think it is indebted for its escape to other causes. The farmer and gardener who devote a part of their time to the cultivation of stone fruit, often tell us that their choicest selections fail, cast their fruit prematurely, and, indeed, seldom if ever fully renumerate them for the labour and expense involved in their cultivation. For this they are unable oftimes to assign any adequate cause; and yet it is the result of the injuries inflicted by the curculio, and one of the surest indications of its presence. The small minute egg, which by means of a nidus prepared by a small puncture, is deposited in the soft palaceous substance of the incipient fruit, becomes in time a worm, which eats its way to the stone and causes the fruit to drop. Immediately upon this result, the worm forsakes its former *nidus*, prepared for it by its parent, and seeks a lodgment in the soil, and early the next spring, about the time the fruit becomes visible on the bough, it emerges from its terrene bed a winged insect, and endued with the same instincts, and prepared to pursue the same round of action as that pursued by its parent of the year before. Although furnished with wings, it is seldom seen to use them—ascending to the scene of its depredations generally by the bark of the trunk, and but rarely trusting itself to the air when it can exercise or find use for its legs. It is frequently the case that on examining the fruit of a tree infested by the curculio, every plum or cherry will be found to have a small puncture on its surface which indicates the position of an egg. The motions of this insect are surprisingly quick and agile, and it is only by the most exact and persevering attention, that one is able to discover them; they seem to have been endowed by nature with an instinct which teaches them to shun the human face and to secrete themselves at his approach. Dr. Gage remarks that he had a tree of the "Prince's Imperial Gage Plum," a variety, although the most productive of its class, that could never be made to produce a crop of fruit on account of the injuries produced by the curculio. He however adopted the following method, and finally succeeded in securing a crop of fruit. Early in the spring, or about the period of infloresence, he deposited near the tree a hen-coop, containing an early brood of chickens. After the insects had emerged from the soil, and before they were able to ascend the tree, every one of them was taken up and destroyed by the brood.

The most effectual method of warding off the attacks of this troublesome insect, is by showering the mixture above named over the foliage, and permitting hens to run among the trees. If this course is adopted, and the soil about the trunks thoroughly and frequently irrigated with a solution of salt and water, valuable fruit may be raised in any and every section and without fear of the curculio.

GYPSUM AND PLASTER.

To the Editor of the Agriculturist.

SIR,—Although the time for the sowing of gypsum or plaster is, for this year at least, past, pardon my inappropriate application for the solution of a question concerning its real utility,—a question which has not, to my knowledge at least, been satisfactorily answered in any of your issues.—*Does plaster materially enhance the fertility of the soil, or does it act as an exhauster by overtaxing its energies.* I am aware there is a class of individuals who positively assert that farming, conducted without the aid of plaster, is perfect madness; and I am also aware that there is another class who tell us that they have used plaster from year to year without deriving any sensible benefit therefrom. So, Mr. Editor, if you would take the matter in hand, and give us a scientific and chemical solution of the question by examining into the nature of the substance, I think you will give satisfaction to both parties, at least, you will set the question at rest, so far as regards its intrinsic value.

Yours, truly,

Scarboro', June 19th, 1857. JOHN JACQUES, *C. S. Y.*

REMARKS.—We have frequently given our views on the subject above referred to. Our correspondent desires us to undertake a scientific or *chemical* solution of the question. We would remind him that Davy, Liebig, Johnston, and many other distinguished practical chemists have very thoroughly investigated the nature, composition and action of gypsum upon plants, and upon the soil. All that science can do has probably been done to solve the question, still, we must not limit discovery on this subject, or any other. Experiments carefully made and often repeated, must clear up any doubts or difficulties which the chemists laboratory has failed to remove. We have no faith in the formula, analyses, or dicta of amateur chemists in regard to soils, plants, gases, minerals, &c. There is no branch of chemistry which requires greater skill, knowledge, and patient labor to eliminate truth, than that which undertakes to explain the laws of vegetation, the constituents of soils, and the action of manurial substances. There are probably not a dozen men on this continent capable of making an accurate quantitive and qualitative analysis of any given soil. As we make no pretensions to *practical* skill in this matter, we regret that we shall be under the necessity of declining the suggestions of our esteemed correspondent. We are compelled to refer him to the "books," where he will find far more reliable information than any non-professional investigator will be able to afford him.

Plaster will not benefit all soils alike. This fact was soon ascertained, and it is only another proof that the exercise of judgment and skill is necessary in every agricultural process, if we would avoid disappointment and loss. If, for instance, any soil contains naturally an abundance of lime, we should not expect plaster, which is one of the compounds of lime, to produce much effect. So much chemical knowledge as this every farmer ought to possess. We have used plaster upon clay-loam and light soils, with the most decided advantage to the first and second crop; and as the roots of the clover and other grasses were both larger and more numerous than they

would have been without it, and as these roots, when ploughed under, became food for the succeeding crops, we have not been able to discover any injurious effect from the use of plaster on the soils and crops referred to. We refer Mr. Jacques to the May number of the *Agriculturist*, page 126, for some further observations on this point.

PROPER TIME FOR CUTTING GRASS.

At the recent trial of Implements at Syracuse, N. Y., it was arranged that discussions on various subjects connected with agriculture should be held during the evening. A brief report of one of these, which we find in the *R. N. Yorker*, of Rochester, may be worth copying. The subject is one of considerable importance. Says the report:—

"On Wednesday evening Sanford Howard, Esq., was announced to deliver a lecture on the 'Grasses, Proper time of Cutting, &c.' The weather being exceedingly warm, and the speaker much fatigued by the labors of the day, it was proposed that a general conversation be had on the question. Mr. Howard opened the discussion by saying that the subject was very important, as the hay crop was now one of our most valuable products, and it was well to know when to cut it, and how to make it. We should first settle the principle, what is the best condition of the grass for cutting, and why? He believed all plants contained the most nutritive matter when in full bloom. The object which nature seeks is the production of seed. Plants, when they first come from the ground, contain more water than at any other time. At flowering, a crisis arrives, and all the energies of the plant, from that time, are directed to the formation of seed. If seed was sought, it would be well to wait until it ripened or matured, before cutting; but as herbage is sought in hay, it should be cut before the formation of seed, as they are not digestible, not one seed in a million being digested in passing through the animal; therefore, all the substance used up in the formation of seed is lost. Timothy, and all grass, should be cut when it contains the greatest amount of nutritive matter. Convenience, and other things may sometimes operate against carrying out this principle. For instance, Timothy is an imperfect perennial. Further south it is uncertain in endurance. It is found necessary to allow the seed to mature, so as to keep the ground seeded. Sinclair stated that the amount of nutriment contained in grass was ascertained by the proportion soluble in warm water. Prof. Johnston and others had proved that test incorrect, and, indeed, Sinclair had not much faith in it himself.

As to the mode of curing, he could call attention to the method generally practiced of preserving herbs. No one would think of drying them in the sun, or where the dew and rain would fall on them. So with grass, cut when dry, dry it as little as possible in the sun, and let it cure by sweating. A certain degree of decomposition is beneficial, turning the starch into sugar, and making the hay more tender. In answer to a question as to the value of hay caps, Mr. Howard stated they were used by all large farmers near Boston, and were considered very useful.

Mr. Vick inquired if any better test of the value of grass as food had been discovered than the proportion soluble in water. And, also, whether the experience of the farmers present would go to prove or disprove the statement of Mr. Howard, that the best time for cutting Timothy was when in flower. He cared little about the theories of Mr. Johnston, or any other chemist. This, like all other things in agriculture, must be proved by repeated and careful experiments. He would like the experience of farmers.

Mr. Wilson, of Iowa, gave the experience of a neighbor, who raised and sold great quantities of hay. He always cut when in flower; his hay was always prized and sought after by the proprietors of stages, and he got fifteen per cent. more than the ordinary price.

Mr. Stanton Gould, of Hudson, N. Y., made a glowing speech in defence of chemical science, and the doubts attempted to be cast upon the reliability of chemical experiments. The matter which our bodies is composed now is not the same as that which composed

them ten years since, A constant waste is taking place. Chemistry shows us what plants can supply that waste.

Mr. Vick did not design to attack chemistry or chemists; but he did think theories founded on chemical science, unsupported by experiments, should be received with caution, until proved or disproved by experience. Liebig tells us that all we need do to grow a certain crop is to find its mineral elements, and furnish the soil with these, and success, under ordinary circumstances is certain. This theory, so confidently advocated for many years, I suppose it will be admitted, has been proved false by experience, and generally abandoned.

Mr. Gold, of Connecticut, stated that in the north there is no difficulty in raising good Timothy hay, if it is cut early, as it gives a good aftermath, and is better the next spring for being so cut.

Mr. Capron, of Illinois, thought if we would follow the teachings of agricultural chemists we could raise larger crops, and cheaper than we now do.

Mr. Vick thought that as there was a good deal of difference in the theories of agricultural chemists, it would be well for them, or us, to agree as to which is right, before undertaking to follow either.

Mr. Worthington, of Ohio, had a different experience to relate than that expressed by some others. The seed, it is true, does not digest; but it is so small, in proportion to the whole plant, that but little of the nutriment of the plant can be used up in perfecting it; and the most of this, he thought, came from the soil, and not from the leaves and stem of the plant. If the seed should be ground, it would be of but little account.—Grass, when cut in flower, is harder to cure than if cut later; and sometimes is troublesome, if the weather is unfavorable. My experience, and that of my neighbors is, that the best time to cut Timothy grass is when the seed has so far matured as to germinate. We have all tried cutting in the flower, and abandoned it. Cutting in flower injures the roots, and if continued, destroys our meadows. Prof. Kirtland has made this question a matter of careful and diligent study, and he has found that the best time to cut is when the stalk becomes dry at a point above the first or second joint of the stem. If cut earlier than this, the roots send up new stalks, and thereby become weakened, and die out during the winter.

Mr. Howard relied for his statements on the experience of his neighbors, as well as on the opinions of chemists. The question raised by the gentleman from Rochester, whether the experience of farmers agrees with the theories of chemists, is certainly a very important one. John Johnston, of Geneva, in discussing this matter with one of his neighbors, agreed to leave the question with a flock of lambs, and they soon decided it, by eating up clean that which was cut in flower, but of the later cut, a great part was left and wasted.

Mr. Haines, of Illinois, had found that the best time to cut grass was when the blossom on the earliest heads was falling. Experienced the same difficulty as Mr. Worthington with the Timothy dying out; and the only way he could preserve his meadows was to drag them in the spring, which seemed to invigorate the roots and give them a new start.

Cucumber Bugs.—Dr. Heckerman, of Tiffin, writes:—Most gardeners are very much annoyed by these bugs, which prey alike upon the cucumber, melon, pumpkin, and squash—the latter being its favourite. Various plans have been devised for their protection, such as soot, &c. A method which I have practised with nearly entire success, is to form a mixture of equal parts finely ground black pepper and wheat flour, and dust the plants, while the dew is upon them, with this mixture, using an ordinary flour or pepper box. It is a fact generally known, that black pepper is so obnoxious to most insects, that few will approach or stay in its presence. The object of the flour is to combine with the pepper, and with the water or dew to form a paste, which will adhere to the leaves for many days unless washed off by heavy rains; and in which case the application should be renewed.

Farmers, don't eat in the Kitchen.—It is the custom with some farmers, to make a constant practice of taking all meals in the kitchen; but this habit *marks a low state of civilization.* The occupation of farming is the natural employment of a human being, and it ought to be made a refined and noble pursuit, not a mere way of earning a rude subsistence. It is among the sons and daughters of the farmers, that the pith and marrow of a country are to be found, and every grace that belongs to rural life should find its highest examples in the home and family of the intelligent American farmers.—*Vaux.*

TRAINING STEERS TO THE YOKE.

Perhaps, in all agricultural practice, there is nothing in which we differ so far from the dictates of reason, by which we ought to be guided, as in the training of steers for the yoke. The child, with all his reason, is subject to a gradual introduction into the various fields of labor in which he is expected to operate. The man who is to be initiated into the Masons' Lodge, has to be assured over and over again, that he "wont be hurt," before he will venture to tread the halls from which "no tales are told." In fact it is a rule of reason, in every other instance, to train gradually the eye, the ear, and the sense. But when steers are to be trained for the yoke, no heed is given to the dictates of reason. They are broken in some way to draw, and to walk before the ponderous load; but whether according to the teachings of mercy or reason, is a subject of investigation with neither the philanthropist or moralist. The result but gained—the labor performed, and no inquiries are made.

When a pair of animals are to be broken, or more properly trained, to the yoke, the farmer secures the aid of boys and men enough to yard them, catch them, and put upon their necks the yoke, and about their horns the ropes by which they are to be led. The poor beasts, frightened almost beyond the power of moving, stand trembling amid their captors, subdued by naught save brutal force. Once secure with the bows about their necks, they are told to "go." They may start away with all their might, endeavoring by the use of their every power to free themselves from the presence of their captors, but they are fully as apt to stand trembling in mortal fear. If they do not start, the whip is applied, if this does not start them their tails are wrung, clubs are used, and last of all fire, or the approach of some cowardly dog gives them the use of their limbs, and they—go! Two of the ablest youths among their captors, guide their movements on either side and endeavor to hinder their "running away." But on they gallop at their highest speed, urged on by the very presence of their drivers, until perhaps brought up by some fence crossing their route. Here spectators again approach, and remarks upon the probable disposition of each—their ease to break—their appearance, future value, &c.

But I need not describe further this oft repeated scene,—it is familiar, and has had many witnesses. It can, as a system, have no advocates, when the better way which we are about to describe, becomes generally known. And yet it may. unless a certain class —opposed to book-farming—can have the privilege of learning it from some travelling conjuror, at a cost of five or more dollars, instead of from the Rural for nothing.

The training of cattle for the yoke, may be done as easily as of colts for the harness, and with as little expense to the spirits of the animal. But in order to accomplish this, we must possess ourselves of abundant patience. We must also have a will for the work—it should be a love—coupled with unflagging resolution. Possessing these, we should accustom to be taught (for what is it but teaching) to our presence, and if possible to being handled. But if this is impracticable from lack of time or other cause,—provide a well fenced "prison yard" or "schoolroom," in which to exercise them; in some place where they have been in the habit of running when unrestrained. The yard should be about five or six rods long, and from two to three rods wide—if the cattle are very wild, not so long, so that, with all their efforts, they may not be able to escape but a little way from the presence of their teacher. In getting your animals—not more than four—into the yard, use care that they may not be frightened, and begin by taming, and accustoming them to your presence. Keep them moving about the yard at liberty, making use of the signals common in driving trained cattle. Your first object is to weary them while under your power, and as they have much farther to travel than you, this will soon be done, so that you may manage them considerably; turning them about and perhaps stopping them. Proceed no faster than you can do without whipping or forcing, or what is more important, scaring them. When they are sufficiently trained so that you can handle them without alarm, you may put the yoke on them, but they can be taught as fast for a considerable time without the yoke—until they may be driven about and stopped, and turned round at pleasure. Of course specific directions for action in every case cannot be given, but the system is capable of general adoption, and is better for wild, unmanageable steers, than any other. Its advantages are, that the animal is trained to the yoke with-

out fright, and being taught without running away, is less liable to do so when at work.

We think that no one can read the foregoing, without being convinced that it is better to accustom animals to the presence of the driver where they cannot escape from him, than to run and chase over many a weary mile, tiring both parties, and effecting no more than by the quiet, easy method described. We hope, at least, that all merciful men will be found on the side of mercy.—*Cor. Rural New Yorker.*

OREIDE—SUBSTITUTE FOR GOLD.

The manufacture of this new metal Oreide, under the French patent of H. Migeon, granted in this country, March 3, 1857, has been commenced on a large scale in Waterbury, Conn., and it will undoubtedly soon be in use, as it is already in France for various articles of domestic economy and all sorts of ornamentation, as it bears relation to gold similar to that of German silver to pure silver; like German silver, it may be used in a pure condition, or as a base of gold plating. It bears so strong a resemblance to gold, that when manufactured into fine articles, such as we have become accustomed to see made only of gold, we are at once convinced that the article we are handling is really the pure metal, yet it is made of a material that cost only eighty cents a pound as it comes from the furnace where the several metals of its composition have been refined into ingots.

The Oreide is not a new metal—it is only a new compound of old metals, so refined in the process as to have done away with a great part of their disposition to oxidise, as it only tarnishes in about the same degree as silver, and though ebulition takes place, if tested with nitric acid, it does not leave a black spot, so that it may be actually cleaned with acids which would destroy such metals as copper or brass. We have examined this metal in bars and sheets, prepared for the manufacture of various articles, and also in its manufactured state—in spoons, sugar-tongs, napkin-rings, goblets, buttons, watch chains, various articles of plain and chased jewelry and cast ornaments, and plates of various thickness, from tin foil to the sixteenth of an inch thick, combined with gold, so as to show gold upon one side and the Oreide upon the other, and it was certainly very difficult to tell which was gold and which was Oreide. That it is an improvement in the arts there can be no doubt; and that it so much resembles gold as to make it necessary for our legislature at once to require, as in France, that all articles should be stamped "Oreide" to prevent great frauds, will probably be found out after a great many people have been severely cheated.—*N. Y. Tribune.*

Crystallization of Iron.—At a meeting of the Society of Civil Engineers, in England, one of the members stated that a large anchor, which had been in store for more than a century at Woolwich Dock, and was supposed to be made of extremely good iron, had been recently tested as an experiment, and had broken instantly with a comparatively small strain, the fracture presenting large crystals. In this case the effect was believed to be produced by magnetic influences, dependent on the length of time the iron had been in the same position. Another member stated that at the gas works, under his direction, wrought iron fire-bars, though more expensive, were generally preferred. A pan of water was kept beneath them, the steam from which would speedily cause them to become magnetic. He stated, further, that he had frequently seen these bars, when thrown down, break into three pieces, with a crystalline fracture.

Gooseberry Bushes.—To prevent the gooseberry from being affected by mildew, cover the soil around the roots with a stratum of salt hay, two or three inches thick, and allow it to remain through the season. Irrigating once a week with soap suds, taking care to sprinkle all the foliage with the fluid, will also be very beneficial. One thing, however, should be observed in the cultivation of this fruit, and that is, never to plant the bushes under trees or in the shade.

Cress (or Pepper Grass) is very good in salads along with lettuces, white mustard, or rape. It should be sown in little drills *very thick*,(as should the white mustard and the rape) and *cut before it comes into the rough leaf*. A small quantity, in the salad season, should be sown every six days. This salad, as well as the mustard and the rape, may be very conveniently raised in the corner of a hot-bed made for radishes or cabbage plants.

CHOICE OF A SITUATION.

In choosing a site for a dwelling house, one should never omit to regard, as of primary importance, its healthfulness and comfortable exposure. Elevated sites are not always the most healthy, nor are valleys invariably less exposed to winds than high places. A dry tract in a sheltered valley is unusually healthy, while one that is cold and damp, how great soever its elevation, is always unhealthy. It may be considered an axiom, that a dry situation is in any country preferable to the damp one, being less exposed to pestilential vapors in a warm climate, and to the predisposing causes of pulmonary complaints in a cold climate. A large proportion of the coughs and catarrhs to which our people are subject, might be avoided, if our dwelling houses were placed upon dry and protected situations. When it is not in the power of the proprietor to choose such a site, he should obviate the evils arising from a damp soil, by a thorough system of drainage. If his pecuniary resources are too limited for the expense that would attend it, he would be wise to finish the interior in a plainer style, and use the money thus saved to pay for his draining operations.

The dryness of any tract depends more on the character of the soil and the subsoil, than upon its elevation. A subsoil of clay, and a foundation of rock, are unfavorable in this respect. Slopes of either description are commonly wet and springy. Those swells of land which are termed by geologists *morains*, are most free from springs and from superabundant moisture, consisting of pebbles, gravel and loam. All these circumstances affect our comfort and convenience, no less than our health. Mud is abundant in wet weather around a house which is placed on a clay foundation, unless it be drained and covered with gravel; and the most disagreeable dust in dry weather is produced by clay.

There are other considerations worthy of particular notice. No little circumstance puts the female members of a well ordered household so greatly out of humor, as the bringing into the house the mud from the streets and enclosures. When, therefore, the soil and the subsoil are both of clay, they ought to be covered with eight or ten inches of good gravel, and subjected to complete drainage. The children of a family are more comfortable in a place that has a sandy or gravelly foundation, natural or artificial, and they annoy the housekeepers less by bringing mud into the house upon their feet. This evil is not avoided by simply raising the house on a terrace, if the grounds are left in their natural condition outside of the embankment. The best method of avoiding mud and dámpness, is to elevate the house, if it be placed upon a flat, and build a gravel slope, extending several rods in all directions from the house. The more gradual the slide the better, as a deep descent is liable to be furrowed by the streams that come from showers.

Under the head of location, position may very properly be made a theme of discourse, for a house may stand on an excellent site, and yet be so inconveniently placed, as to lose many of its advantages. A house on the slope of a hill is liable to be exposed to the water that flows from the summit. Hence it should not be set on a level or in a hollow, but on a gentle swell of land, causing the streams that run from the hill to circle round it. Many of these points, which would seem too obvious to need mention, are frequently overlooked or disregarded, while the proprietor squanders his money upon needles embellishments and ostentatious follies.

A dwelling house ought to be conveniently accessible from the street; and it is better to forego some advantages of prospect, than to place it so far upon a declivity as to render it difficult to be reached, either on foot or in a carriage. Neither should a house in the country stand directly on the road side; it should be placed far enough from it to escape the dust, without causing inconvenience to the occupants on account of distance.

It may be further remarked, without encouraging that idle propensity that causes certain persons to prefer the opportunity of seeing the objects in the streets, to any other circumstance connected with location, that it is confessedly, at certain times, an agreeable and rational amusement, to look out upon this varied procession of moving objects. In winter especially, after the female members of the family have passed several weeks in the seclusion of their home, an occasional sight of other human beings in the street affords a cheerful recreation. To an invalid, likewise, who is confined to the house, these scenes are important trifles that may seriously affect his spirits; and they furnish points which are not unworthy of our regard, in the choice of a site for a dwelling house. —*Hovey's Magazine of Horticulture.*

CURRANT WINE.

This article, as usually manufactured, is rather a cordial than a wine, and is entirely inferior to the commonest imported wine; but when properly made, it will be found to be a very superior healthy beverage, particularly for summer drink when fully diluted with water.

We have experimented carefully on the making of currant wine, and the following will be found to give a result which we have found no difficulty in selling in large quantities at $1 per gallon.

Before pressing the juice from the currants pass them between a pair of rollers to crush them after which they may be placed in a strong bag and they will part with the juice readily by light pressure, such as a common screw, heavy weights &c. To each quart of juice add three pounds double refined sugar, single refined sugar is not sufficiently pure—then add as much water as will make one gallon. Or in other words, suppose the cask intended to be used to be 30 gallons. In this put 30 quarts of currant juice, 90 lbs of double refined sugar, and fill the cask to the bung with water; roll it over till the sugar is all dissolved. This will be told by its ceasing to rattle in the barrel. Next day roll it again and place it in a cellar, where the temperature is sure to be even. Leave the bung loose for the free admission of air. In the course of two or three days, fermentation will commence. By placing the ear to the bung hole, a slight noise will be heard, such as may be observed when carbonic acid is escaping from champagne or soda water. Fermentation will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases, drive the bung in tightly, and leave the cask for six months—the wine may be drawn off perfectly clear without any excess of sweetness.

The reason why double refined sugar should be used may be thus understood. Ordinary sugar contains one-half per cent. of gum, which, when dissolved in water becomes fetid. Suppose then, four or five ounces of gum dissolved in a barrel of water, we can readily understand that at the end of a few months this water will be very foul in flavor.

No alcohol should be added. The practice of putting in small quantities of brandy and other liquors makes a cordial and not wine. All the sugar used may be so fermented as at least to change its character chemically, and this change will produce all the alcohol required.—*Working Farmer.*

CUTTING OFF COWS' TEATS.

It is a very common thing for cows to have one or two supernumerary teats, on the udder, just behind the four teats, from which the milk is drawn. These small teats are often very inconvenient and troublesome in milking, on account of their diminutive size and length; and they are often so near the other teats that when a calf is sucking it will draw milk from both the large and small ones; and then, after the calf is weaned, if the small teats are not milked, there is a tendency to inflammation of the udder. Four teats are enough for any cow; and that is the usual number for cows—although we have seen six well developed teats on the udder of a cow, the hindermost ones being quite as large as the foremost ones. And, since a cow will give no more milk from five or six teats, than from four, they had better by far, be off the udder than on it.

I have a young cow that had five teats on her udder, the fifth one being so close to the others as to be very inconvenient about milking. The calf would suck it, and it soon became as long as the others. With no little hesitancy and doubt, we ventured to try an experiment in cutting it off. About the first of May last, we tied the legs of the cow, and then put a piece of common bonnet wire around the teat, and with the pliers twisted the ends firmly together, so that the wire seemed buried in the teat. It was twisted up so tightly as to stop, almost entirely, all circulation of the blood. The wire was put on about one-forth of an inch from the udder. The wire was *annealed* before using, by allowing it to become red hot in the fire when the fire is about to go out, and to become cool, very gradually, as the fire disappears. This process make it very tough, so that it can be well twisted. After the wire had been on about fifty days, the teat dropped off, and gave us no more trouble. The wire never produced any inflammation; and the *issue* of the teat, which we feared might not be well closed after the teat was cut off, is completely healed over.—*Cor. R. N. Yorker.*

HOW TO FARM PROFITABLY, PARTICULARLY ON STIFF HEAVY SOILS.

BY MR. SHERIFF MECHI, LONDON.

We have read this pamphlet with much interest. Mr. Sheriff Mechi gives full particulars of his management, and shows that if good husbandry will not pay—then in Great Britain there is no husbandry that will. He concludes his pamphlet of about 40 pages, as follows :—

"Take my own case as an illustration of the principle which I am endeavouring to enforce. The original rental of my farm was a little over 20s. per acre. It is now more than double that sum, the excess being interest on improvements; now instead of £1 per acre difference in the crops as compared with what they used to be, 14 years experience has taught me that the difference is from £3 to £5 per acre, and in some crops £7 to £9 per acre. The average yield of the crops now and before the improvements may be represented as five to three at the very least. On comparing notes with an intelligent neighbour of mine, he admitted that my extra expenses of £2 per acre, as compared with his, were more than compensated in my increased crops. In conclusion, if I find a heavy land farm properly drained, free from unnecessary fences, with good covered yards centrally placed, and proper and modern machinery; if I find it free from weeds, and above all, if I know that on that arable farm at least 200 lbs. weight of meat is made per acre per annum, the result must be a certain profit. Nothing can prevent this but gross mismanagement or ignorance of the business. But how few such farms does merry England exhibit! Truth replies, how few!!! All my life it has been my habit, in order to arrive at truth, to examine and compare various systems, with a view to form a judgment on the facts. I am quite satisfied that the mass of mankind do not adopt my practice, else it would be impossible that such miserable and unprofitable discrepancies could exist in Agriculture. There are none so blind as those who will not see, and if self-interest will not prompt our landlords and tenants mutually to improve, nothing that I can say can have that desirable effect.

"The food question is an important one: a month's holiday to the British stomach would settle all our manufactures, commerce and philosophy. We must make the acres we have yield up a large increase, as we cannot extend them. It is true we are enabled to get corn from our neighbors by paying for it, but meat we cannot get, and unless much more meat is produced per acre than at present the prices will naturally rise much higher, and cramp consumption. I can scarcely have patience, when asked 'But where is the money to come from for all these improvements?' when I see daily the tendency to invest in every new speculation, British or foreign, except 'National Agricultural Improvement.' In conclusion, having proved my case, and exposed my farm for many years to public inspection, it is now my intention to sit down quietly and enjoy the privacy of agricultural peace and plenty."

The time is at hand when in Canada we shall have to depend upon improved farming, if we expect farming to pay.

A Flower in your Room.—A fire in winter, a flower in summer! If you can have a fine print or picture all the year round, so much the better; you will thus always have a bit of sunshine in your room, whether the sky be clear or not, But, above all, a flower in summer!

Most people have yet to learn the true enjoyment of life; it is not fine dresses, or large houses, or elegant furniture, or rich wines, or gay parties, that make homes happy. Really wealth cannot purchase blessings of a higher sort; these depend not on money, or money's worth; it is the heart, and taste, and intellect, which determine the happiness of men; which give the seeing eye and sentient nature, and without which, man is little better than a kind of walking clothes-horse.

A snug and clean home, no matter how tiny it be, so that it be wholesome; windows, into which the sun can shine cheerily: a few good books and papers, (and who need be without them, in these days of universal cheapness?) no duns at the door, and the cupboard well supplied, and with a flower in your room!—and there is none so poor as not to have about him the elements of pleasure.

The Mighty West.—The scream of the steamer's whistle is now heard twenty-seven hundred miles above St. Louis, in the upper waters of the Missouri and Yellow Stone.

THE HORSE CHARM; OR, THE GREAT SECRET FOR TAMING HORSES.

The horse castor is a wart, or excrescence, which grows on every horse's fore legs, and generally on the hind legs. It has a peculiar rank, musty smell, and easily pulled off. The ammoniacal effluvia of the horse seems peculiarly to concentrate in this part, and its very strong odour has a great attraction for all animals, especially canine, and the horse himself.

For the oil of cumin, the horse has an instinctive passion—both are original natives of Arabia, and when the horse scents the odor, he is instinctively drawn toward it.

The oil of Rhodium possesses peculiar properties. All animals seem to cherish a fondness for it, and it exercises a kind of subduing influence over them.

The directions given for taming horses are as follows:—

Procure some horse-castor, and grate it fine; also get some oil of Rhodium and oil of cumin, and keep the three separate in air-tight bottles.

Rub a little oil of cumin upon your hand; and approach the horse in the field, on the windward side, so that he can smell the cumin. The horse will let you come up to him then without trouble.

Immediately rub your hand gently on the horse's nose, getting a little of the oil on it. You can then lead him anywhere. Give him a little of the castor on a piece of loaf sugar, apple or potatoe.

Put 8 drops of oil of Rhodium into a lady's silver thimble. Take the thimble between the thumb and middle finger of your right hand, with the fore-finger stopping the mouth of the thimble, to prevent the oil from running out whilst you are opening the mouth of the horse.

As soon as you have opened the horse's mouth, tip the thimble over upon his tongue and he is your servant. He will follow you like a pet dog.

Ride fearless and promptly, with your knees pressed to the side of the horse, and your toes turned in and heels out; then you will always be on the alert for a shy or sheer from the horse, and he can never throw you.

Then if you want to teach him to lie down, stand on his nigh or left side; have a couple of leather straps about six feet long; string up his left leg with one of them round his neck; strap the other end of it over his shoulders; hold it in your hand, and when you are ready, tell him to lie down, at the same time gently, firmly and steadily pulling the strap, touching him lightly on the knee with a switch. The horse will lie down immediately. Do this a few times, and you can make him lie down without the straps.

He is now your pupil and friend. You can teach him anything, only be kind to him, be gentle. Love him, and he will love you. Feed him before you do yourself. Shelter him well, groom him yourself, keep him clean, and at night always give him a good bed, at least a foot deep.

In the winter season, don't let your horse stand out a long time in the cold, without shelter or covering; for remember that the horse is an aboriginal native of a warm climate, and in many respects, his constitution is as tender as a man's.—*Selected.*

Iron and Tin in Galvanism.—Ordinary tin plates, or plates of thin sheet iron coated with an alloy of tin and lead, with a small proportion of antimony, form a native element for galvanic batteries so stern as to be scarcely affected by the sulphuric acid, and answer the purpose as well as platinized silver, at a very trifling cost. It is also found that iron coated with an alloy of lead and tin, in which the quantity of lead is nearly equal to or exceeds that of tin, will answer as well as lead or galvanized iron for roofing, cisterns, baths, pipes, gutters, window frames, and many other purposes.

The Poppy.—A letter received at the Patent Office from Germany, says the poppy is cultivated in Southern Germany to a large extent, as a substitute for sweet oil. It has supplanted the use of the imported olive oil wholly in that country. It is further stated that the soil and climate of the New England States is highly suited for the culture of this article, and they might provide the whole Union with sweet oil, and therefore save a large sum of money, which goes to France and Italy.

Iron Churches, seventy feet long, forty feet wide, and twenty feet high, capable of accommodating seven hundred persons, and costing about $5,000 each, have been erected recently in the neighbourhood of London. They are lined with wood, which is covered with convass and papered. They can be taken down and moved to other locations if desired.

THE IMPORTANCE OF SALT FOR ANIMALS.

All kinds of stock require salt to keep them in good health, especially at this season, when the pastures are rich and they are eating large quantities of green food. Every farmer has observed that his cattle, horses, &c., are very fond of licking the salt earth of the barn yard and stables.

Whenever you observe this, you may be sure the animals want salt, for nature is a pretty safe guide in such matters,

Governor Emerson says :—

"In Spain, they give their sheep salt with great regularity: 112lbs. in five months to 1000 sheep. Mr. Curwen gave salt to his live stock daily for years.

For horses he gave	6 oz. per day
Milch cows	4
Feeding oxen	6
Yearlings	3
Calves	1
Sheep	2 to 4 per week

if on dry pastures; but if they are feeding on turnips or coles, then they should have it without stint. Some give it to the live stock on a slate or stone, some lay lumps of it in the cribs or mangers. It is an asserted fact, that if *sheep are allowed free access to salt they will never be troubled with the disease called the rot.* Some recent experiments also lead me even to hope that I shall one day or other be able to prove it to be a cure for this devastating disease. I have room but for one fact. "Mr. Rusher, of Stanley, in Gloucestershire, in the autumn of 1828, purchased for a mere trifle 20 sheep, *decidedly rotten*, and gave each of them for some weeks, an ounce of salt every morning. Two only died during the winter; the surviving 18 were *cured*, and have now," says my informant, "lambs by their sides."

The late Mr. Butcher, of Brook Hall, in Essex, for years employed salt for his cattle and sheep, on his farm near Burnham, in Norfolk. One of his fields was so very unfavorable for sheep, that before he used salt he lost 10 or 14 sheep in a night, when feeding on the turnips; but after he had adopted salt, he never lost one. He used to let the sheep have the salt without stint; and he remarked, that the sheep always consumed four times the salt on this *particular field* than when feeding on any other on the farm. Mr. Butcher one year let this field of turnips to a neighbour, who did not use salt; and consequently after losing 10 sheep the first night, gave up the field in despair.

The Faculty of Feigning Death.—There are cases on record of persons who could spontaneously fall into a death-trance. Monti, in a letter to Haller, mentions several. A priest of the name of Caelius Rhodaginus had the same faculty. But the most celebrated instance is that of Colonel Townshend, mentioned in the surgical works of Gooch; by whom, and by Dr. Cheyne and Dr. Beynard, and by Mr. Shrine, an apothecary, the performance of Colonel Townshend was seen and attested. They had long attended him for he was an habitual invalid; and he had often invited them to witness the phenomenon of his dying and coming to life again, but they had hitherto refused, from fear of the consequences to himself. Accordingly, in their presence, Colonel Townshend laid himself down on his back, and Dr. Cheyne undertook to observe the pulse; Dr. Beynard laid his hand on the heart; and Mr. Shrine had a looking-glass to hold to his mouth. After a few seconds, pulse, breathing, and the action of the heart were no longer to be observed. Each of the witnesses satisfied himself of the entire cessation of these phenomena. When the death-trance had lasted half an hour, the doctors began to fear that their patient had pushed the experiment too far, and was dead in earnest; and they were preparing to leave the house, when a slight movement of the body attracted their attention. They renewed their routine of observation, when the pulse and sensible motion of the heart gradually returned, and breathing and consciousness. The sequel of the tale is strange —Colonel Townshend, on recovering, sent for his attorney, made his will, and died, for good and all, six hours afterwards.—*Phantasmata, by R. R. Madden.*

MANAGEMENT OF CHEESE.

According to the French authorities in dairy matters, those cheeses which have received pressure in too fresh a state, and from which the whey is not entirely separated are liable to rise, and have in their centres holes or reservoirs of air, which cause a spongy and disagreeable look. When this takes place during the manufacture, and if the fermentation is considerable, the cheese should be placed in a cool and dry situation, piercing it with skewers of iron in the parts where it rises the most; the air or gases escape by these openings, the cheese subsides, and the interior presents fewer cavities. An experienced dairyman, Mr. Harris, says that the only way to make good cheese, is to produce lactic acid from the sugar of milk by fermentation. The case in milk will of itself change the sugar into lactic acid and curdle the milk; but before it does this, it has itself begun to ferment under the influence of light and heat, and by the absorption of oxygen from the air. If curd be exposed to the atmosphere for a few days and then added to milk, it coagulates it as quickly as rennet, and is often used for this purpose. As cheese-making is a fermenting process, it is influenced materially by heat, proceeding within certain limits; faster or slower as the temperature is raised or lowered. The heat of the milk when ready for the rennet may be one hundred degrees. If the rennet is good, the milk will curdle hard enough to cut in thirty minutes. After the whey which rises is dipped off, which is done by putting a strainer over the tub, the curd should again be broken with careful handling, as too much squeezing works away the richest part of the curd. The whey first dipped off is put into a tin heater, set in a kettle of water, and heated, during which process it can be worked fine, so that the curd will scald evenly.

When the curd feels a little tough, it is sufficiently scalded, when it should be strained and worked till the whey is well worked out, and it is then to be salted—the quantity of salt being determined by the taste. In pressing, all the whey should be pressed out before the rind forms—say twenty-four hours—in which time the cheese should be turned twice into clean cloths. When the cheese comes from the press, it should be graesed and bandaged; the grease most suitable is made from whey cream, churned into butter, and fried in an iron kettle over a slow fire, until it becomes clear like oil; then a little annotto may be added, to give the cheese the proper coloring. The cheese should be turned and greased every day, to prevent moulding.

Cream cheese may be made by taking one quart of very rich cream, a little soured, putting it in a linen cloth, and tying it very closely to the cream; let this hang up to drain a couple of days—then take it down, and carefully turn it into a clean cloth, and hang it up for two more days—then take it down, and having put a piece of linen on a deep soup plate, turn the cheese upon it. Cover it over with the linen, keep turning it every day, on to a clean plate and clean cloth, until it is ripe, which will be in about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt upon the outside, when it is turned. If it is wanted to ripen quickly, keep it covered with mint, or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger they can be made so.

Advice to Wives.—A wife must learn how to form her husband's happiness, and in what direction the secret lies; she must not cherish his weaknesses by working upon them; she must not rashly run counter to his prejudices; her motto must be, never to irritate. She must study never to draw largely on the small stock of patience in a man's nature, nor to increase his obstinacy by trying to drive him; never, never, if possible, to have scenes. We doubt much if a real quarrel, even if made up, does not loosen the bond between man and wife, and sometimes, unless the affection of both be very sincere, lastingly. If irritation should occur, a woman must expect to hear from most men a strength and vehemence of language far more than the occasion requires. Mild as well as stern men are prone to this exaggeration of language; let not a woman be tempted to say anything sarcastic or violent in retaliation. The bitterest repentance must needs follow if she do. Men frequently forget what they have said, but seldom what is uttered by their wives. They are grateful, too, for forbearance in such cases; for, whilst asserting most loudly that they are right, they are often conscious that they are wrong. Give a little time, as the greatest boon you can bestow, to the irritated feelings of your husband.

WHEAT CULTURE.—FACTS AND INFERENCES.

In 1850 the wheat crop of Maine was less than in 1840 by more than 500,000 bushels —that of New Hampshire was less by more than 220,000 bushels—of Massachusetts by 120,000 bushels—of Connecticut it was less by more than one-half, being 87,000 in 1840, and only 41,000 in 1850. In Rhode Island it dwindled from 3,000 bushels in 1840, to 49 in 1850. In Vermont alone, of all the New England States, it was greater in 1850 than in 1840, being in 1840, 495,000 bushels, and 1850, 535,000—an increase of 40,000 bushels. The whole wheat crop of New England, Vermont included, was less in 1850 than 1840 by more than 720,000 bushels—or a diminution of more than one-third in a single decade. Ohio raised less wheat in 1850 than in 1840 by more than 2,000,000 bushels. Yet the three States, New York, Pennsylvania and Ohio, raised *more* wheat in 1850 than in 1840 by nearly 1,000,000 bushels. Kentucky raised less wheat in 1850 than in 1840 by more than 2,500,000 bushels. Virginia, on the other hand, and Maryland and Arkansas, and all the newer Western and North-Western States and Territories, grew so much more wheat in 1850 than in 1840, that during these ten years the annual aggregate wheat crop of the United States was increased from 84,000,000 to 100,000,000 bushels—an advance of nearly 20 per cent.

The inferences we draw from these facts we proceed to state in a few words. They are abundantly confirmed by experience:

1. In the older States the wheat culture is, on the whole, greatly on the decline. Climate in the North-Eastern States, and careless culture, with a general disregard of the demands of the soil, almost everywhere, are among the most active causes of this decline.

2. In all the newest States the wheat crop is greatly, for the present, on the increase. The reasons for this fact will be obvious, when it is remembered that the virgin soil of the new country is still rich, and that large tracts of lands are still annually cleared or broken up and brought under cultivation.

3. In the Middle States, where a favourable soil has been supported by careful culture and suitable manures, the wheat crop has "held its own," quite well.

We hope these facts will not fail to impress their obvious lesson on the farmers of our new Western States. The example of Great Britain proves that old lands, if properly managed, may continue to grow abundant crops of this most coveted of all the cereals.—*R. N. Yorker.*

WROUGHT IRON CARS.

There is now nearly completed in Patterson, N. J., a first-class passenger car, a little larger than the ordinary size, constructed almost entirely of wrought iron. This material is employed to obtain great strength, with less weight than usual, and to avoid the injuries to passengers due to the destruction of ordinary cars in any kind of a smash. The experiment, which is being conducted on a most liberal scale, and with a view to establish conclusively the practical superiority of this system, is made at the expense of Mr. E. W. Sargent, a merchant of New York, under the patent of Dr. B. J. LaMothe. The frame-work is in effect an extremely strong and stiff, yet elastic, basket, each joint or intersection being strengthened by rivits, and the whole being further protected by making the entire platform at each end one strong spring of steel. If the construction runs off the track, falls down a precipice, or comes into collision with another in such manner that the springs at the ends cannot absorb the shock, the car itself will spring, collapse, twist or crumple up, but cannot break and crush its contents with the fragments. One of the great dangers in collision, &c., arises from the disposition of ordinary cars to penetrate each other with their timbers, or to shut together like the parts of a telescope, and another arises from the facility with which the tops and sides, the seats, &c., separate from the more substantial floors, and are precipitated forward with the passengers. Neither of these, nor many other minor evils, could arise from any violence to this style of car, which is also much lighter than the wooden ones, and thus will absorb far less power in hauling it. The car is constructed entirely of strips, so connected as to be practically without joints. We hope to see this car perfectly successful in practice, and that it may revolutionize the mode of constructing these important carriers of human freight. The principle is beyond doubt an excellent one.—*Sci. American.*

RAISING STOCK.

The rearing of good dairy stock is an object of great importance to the farmer. The cow ranks high among our domestic animals. Probably no other is of more importance to us. She furnishes both the necessaries and luxuries of life. To the farmer she is a source of both luxury and profit. How desirable, then, that in rearing dairy stock, he should produce animals of the best qualities for his purpose! And the question, how this can best be accomplished, is one of much interest to breeders of neat stock. If "like produces like," too much care and skill can hardly be exercised by the breeder in the selection of his breeding animals. He should select such as have the style and qualities desired in their offspring.

In rearing heifers for the dairy, such should be chosen as have descended from good milking stock. It is not only important that the dam should have been a good milker, but equally so that the sire should have been bred from a good milking race. It is generally believed by breeders of experience that the male has as much influence upon the milking qualities of the progeny as the female. Hence the necessity of having well selected males as well as females, in attempting to rear good stock for the dairy. The breeder should not only use superior animals to breed from, but reserve for himself the better portion of their progeny. If a heifer shows an aptitude to fatten easily, she is considered worth more for the shambles than the dairy, and consequently, goes into the hands of the butcher; while some hard-hided one, which could not easily be fattened is reserved for the milk pail.

The opinion is very prevalent among farmers, that a heifer that takes on flesh rapidly will not make a good milker. Perhaps the fact that most good milkers become thin of flesh when in full milk leads to this opinion. But such cows generally fatten quickly when dry. It would seem that the fact of a heifer's fattening easily, should lead to the belief that she would make a good cow for butter, her aptitude to fatten showing her system to be such, that all the carbon of her food is not required for heat and respiration.—*Flint's Ag. Mass.*

POINTS OF A GOOD SHORT HORN.

The appearance and points of a good Short Horn may be thus briefly summed up. The head of the male is short, but, at the same time, fine; very broad across the eyes, but gradually tapering to the nose, the nostril of which is full and prominent, the nose itself of a rich flesh color, neither too light or dark; eyes bright and placid, with ears somewhat large and thin. The head crowned with a curved and rather flat horn, well set on to a lengthy, broad muscular neck; the chest wide, deep and projecting; shoulders fine, oblique, and well formed into the chine; fore legs short, with the upper arm large and powerful; barrel round, deep, and well ribbed up towards the loins and hips, which should be wide and level; back straight from the withers to the setting on of the tail, but still short, that is, from the hip to the chine—the opinion of many good judges being that a beast should have a short back with a long frame. As a consequence of this, the hind leg itself must be lengthy, but well filled in. The symmetry of frame at present to be found in a well bred Short Horn reaches as near perfection as possible, while few animals handle so well, or to use a still more technical term, have "so fine and mellow a touch." The hair is plentiful, soft and mossy, with a hide not too thin; and, in fact somewhat approaching the feeling of velvet. The female enjoys nearly all the same characteristics as the above, with the exception of her head being finer, longer and more tapering; her neck thinner, and altogether higher, and her shoulders inclined to narrow towards the chine Like most well proportioned animals, the Short Horn often looks smaller than he really is. The rapidity with which he puts on flesh, and the weight he frequently makes, are facts so well known that it is scarcely necessary to dilate upon them. Still we may mention that it is no uncommon occurrence to see steers of from four to five years old realizing 140 stones of 14 pounds; many ranging as high as 150 stones.—*Enc. Ag.*

CORIANDER is an annual plant some persons use in soups and salads. It is sown in spring. The seed is also used as a medicine. A small patch, probably two square yards, will be enough.

PROVINCIAL AND STATE SHOWS, 1857.

Alabama, at Montgomery	Oct.	27, 28, 29, 30.
Connecticut, at Bridgeport	Oct.	13, 14, 15. 16.
Canada East, at Montreal	Sept.	16, 17, 18.
Canada West, at Brantford	Sept.	29, 30, & Oct. 1, 2.
East Tennessee, at Knoxville	Oct.	20, 21, 22, 23.
Illinois, at Peoria	Sept.	21, 22, 23, 24.
Indiana, at Indianapolis	Oct.	4, 5, 6, 7, 8, 9, 10.
Iowa, Muscatine	Oct.	6, 7 8, 9.
Kentucky, at Henderson	Oct.	12, 13, 14, 15, 16.
Maine, at Bangor	Sept.	29, 30, & Oct. 1.
Maryland, at Baltimore	Oct.	21, 22, 23, 24, 25.
Massachusetts, at Boston	Oct.	21, 22, 23, 24.
Michigan, at Detroit		
New-Hampshire, at Concord	Oct.	7, 8, 9.
New-Jersey, at New-Brunswick	Sept.	29, 30, & Oct. 1, 2.
New-York, at Buffalo	Oct.	6, 7, 8, 9.
Ohio, at Cincinnati	Sept.	15, 16, 17, 18.
Pennsylvania	Sept.	29, 30, & Oct. 1, 2.
Tennessee, at Nashville	Oct.	12, 13, 14, 15, 16, 17.
United States Agricultural Society, at Louisville, Ken.	Sept.	1, 2, 3, 4, 5, 6.
Vermont, at Montpelier	Sept.	30, & Oct. 1, 2.
Virginia	Oct.	28, 29, 30, 31.
West Tennessee, at Jackson	Oct.	27, 28, 29, 30.
Wisconsin, at Jonesville	Sept.	29, 30, & Oct. 1, 2.

Montreal Horticultural Society	Sept.	16, 17, 18.

VERMIN ON POULTRY.

Poultry sometimes suffer exceedingly by vermin or lice, which irritate and render them uncomfortable. We have found that blowing together smoke among their feathers will kill them. Where hens have a chance to dig into a bed of ashes, or lime and ashes, and throw the dust up among their feathers, they will keep themselves pretty free from vermin. The *Michigan Farmer* quotes the following from a foreign Journal. We do not know what is exactly meant by the substance which is there recommended as "Black Sulphur." It is probably some of the sulphurets, perhaps it is sulphuret of antimony, or crude antimony powdered. This is a black or dark color, and contains a good proportion of sulphur. The paragraph alluded to reads thus:—

John Douglas, a regular, poultry breeder, and who sometimes has 2000 head under his charge, writes to the *Agricultural Gazette*, that where poultry is kept somewhat confined they are apt to get infested with lice. This is particularly the case with setting hens. He recommends that with the sand and lime in the dust corner where the poultry will roll, there should be mixed half a pound of black sulphur. This will not only keep the fowls free from parasites, but will also give their plumage a fine, glossy, healthy appearance. When fowls are infested badly, Mr. Douglas first damps the skin under the feathers, and then dusts on the Black Sulphur. The insects will disappear in about twenty-four hours. Mr. Douglas once had charge of an Ostrich, which was pining from the effects of lice with which he was infested. The feathers next the skin were damped and the black sulphur applied. The lice were found dead the next day, and the Ostrich recovered rapidly.

Butternut Pie.—Boil 1 quart of milk, with the rind of 1 lemon. When it has flavored the milk strain it; have the meats of 8 butternuts mashed fine and mixed smoothly with a little milk; stir into the boiled milk, set it where it will boil; sweeten to the taste; let it 4 minutes, take from the fire and bake directly or the crust will not be good.

Gooseberry Cake.—Stew 1 quart of gooseberries in 2 quarts of water, when soft add lemon, sugar to the taste, butter the size of a hen's egg. Have ready good buttermilk biscuit, baked in flat tins. Open them, turn the sauce upon the lower half, place the other above, as in jelly cake. Serve up hot.

EDITOR'S TABLE.

PROVINCIAL ASSOCIATION.

We are glad to hear that the preparations for the coming show at Brantford are progressing favourably. £1800 have been already contributed by the local municipalities. This, with the receipts at the gates and other funds applicable to the purpose, will render successful the pecuniary part of the exhibition. We notice with pleasure that an attempt will be made to remedy the defects of which we complained last month. The President has issued a Circular, from which we have only space for two or three extracts. He says :—

"I am assured by the Local Committee, that every effort will be made to secure, in the vicinity of Brantford, fields of late spring and clover, *to test the harvesting implements;* and from the unusual lateness of the season, it is hoped we may yet be able to accomplish that desirable point. I am further permitted by the Managing Directors of our railroads, to state that every accomodation will be afforded, at reduced fares to the public, whereby persons residing as far distant as Toronto, Buffalo, London, and Stratford, may come by the morning trains to the Exhibition, and return home each evening."

"Although it has not been made by the Board a positive requirement of the successful Exhibitors of grain and other farm products, (except for the Canada Company's Prize,) that they should render a written statement of their respective systems of husbandry by which they have attained to such results, it is yet hoped that many will make an effort to furnish such information, for the Board of Agriculture to arrange and publish in their "Transactions." Such information should embrace the character of soil and subsoil, system of rotation, the time and manner of applying manure, quantity of seed sown, the best and most practical method of raising the different root crops, the most important points to be attended to in cheese-making, &c. &c.; each Exhibitor studying how he can impart knowledge bearing upon his particular department. To bring out all the results of our Provincial Exhibitions, we require in addition to the most energetic official management, the zealous co-operation of the leading practical men of our country. Upon them it is that we depend for that reliable knowledge, which would be of the utmost value when published. To obtain and circulate such information, is, beyond doubt, one of the greatest functions of this national institution. I would further mention that the Exhibitors of all implements of husbandry, and of manufactures of general utility and importance, should furnish a description of the articles, the price, and the place where they can be bought, as the Board intends publishing a descriptive list of the articles exhibited, for the benefit of the manufacturers and the public."

GREAT SALES OF STOCK.

We direct the attention of our readers to the important sales of thorough bred Stock advertised in this number of the *Agriculturist.* The entire herd of Mr. R. Wade, who was unfortunately killed in the Desjardin's massacre, together with a portion of Mr. John Wade, and Ralph Wade Senior's herds, will be sold on the 26th August. These herds contain as good blood as any on this continent.

Mr. Stone's sale offers a rare opportunity to breeders to infuse newly-imported blood into their Stock. His selections in England were made from the most celebrated herds in that country.

Mr. Allen's sale of Devon Cattle at Black Rock, N. Y., is also worthy of notice to those who prefer that kind of Stock.

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THE APPROACHING PROVINCIAL EXHIBITION.

Preparations at Brantford for holding the Exhibition of the Agricultural Association of Upper Canada, commencing Tuesday, Sept. 29th, are satisfactorily progressing,—and a show surpassing any hitherto held is confidentially anticipated. The following particulars will be useful to our readers, and the public generally.

All articles must be entered on printed forms, and returned to the Secretary, in Toronto, *by Saturday, Sept. 12th* :—blank forms having been sent to all the agricultural societies for this purpose. Entries will be taken, however, in the Ladies' Horticultural, and Foreign Department, up to Monday, Sept. 28th, when the books will *finally* close.

Exhibitors must become members by enclosing a dollar with their entries; this does not apply to the Ladies', Indian and Foreign classes, in which competitors can enter *free*.

Members' Badges, one dollar each, admitting the wearer to free access to the show grounds, during the exhibition, may be obtained at the Treasurer's office on the grounds, or previously by applying to the Secretary of the Association, in Toronto. The price of admission, each time, for non-members, will be a quarter of a dollar.

All articles for exhibition must be on the ground for arrangement, on *Monday, Sept. 28th ;* except live stock, which must not be later than *Tuesday noon*, as it is intended that the judges shall make an inspection, during the afternoon of that day. Exhibitors are particularly requested to notice this regulation.

The judges will meet in the committee room on the ground, on *Tuesday noon ;* but it is expected that they will finish their duties next day, so as to have all stock and articles gaining prizes, ticketted for public inspection, during Thursday and Friday.

Members will be admitted to the grounds on Friday afternoon ; non-members on Wednesday, at noon, and on Thursday and Friday mornings, at 8 o'clock.

On Wednesday evening there will be a public meeting in the Court House; subject of discussion :—"The means of making the Provincial Association still more effective in promoting the Agricultural, Horticultural, and Mechanical, interests of Canada." It has been arranged to have a Farmers' Banquet on Thursday afternoon, in a spacious tent on the grounds :—several distinguished guests and spectators from the United States, as well as this country, will be invited.

The testing of implements will take place on fields as convenient to the show grounds as can be possibly obtained, on the Thursday; mowers will be tried on clover, and if practicable, reapers on oats. Exhibitors therefore must be in readiness with their machines on Thursday morning.

Each judge will receive as soon as all the departments are provided, in the course of a few days, an official notice of his appointment.

Potato Yeast.—Cook and mash ten peeled potatoes, pour on a quart of boiling water and stir well, and add a coffee-cup of sugar; let this stand a few minutes; pour in a quart of cold water, wanting a gill. and when lukewarm stir in a pint of yeast, and set in moderately warm place to rise. When well fermented, put into a stone jug, cork tightly, and tie the cork down and keep it in a cool place. After the first rising keep enough of this yeast for the second batch. A teacup of this yeast is sufficient for two large loaves of bread; most excellent it is for muffins and griddle cakes also. There is no need of hops or flour in it, and in my opinion it is the best yeast I have ever tried, and I experimented in all known receipts.—*Anon.*

Maxims for Farmers.—A writer in the Boston *Cultivator* says :—"I would lay down the following rules, or maxims, which I think experience has demonstrated to be sound:

For rich farms, stock with the stately Durhams; for poorer, the active Devons.

The best point for a milker is a thin thigh.

To kill caterpillars, rub them up with the hand.

To kill lice on cattle, dust lightly with ashes.

To make the best hay, cut the grass early; when partly made by spreading, cock it up for two or three days, then open and cart it. By curing hay in this way, it contains all the aroma and nutriment of grasses.

Use of Plaster.—A correspondent thinks every crop benefited by plaster, and that upon clover it is indispensable. An application of 100 lbs. plaster will increase the hay crop one-third. He sows early in the spring on grass, and on grain as soon as it shows green over the ground. Potatoes, he says, should never be planted without rolling the seed in plaster. It is beneficial on all but wet clay soils. Sandy, gravely, loamy soils never fail to have their crops well benefited by plaster.

Take Care of the Vines.—If you have not already done so, cut off the fruit bearing shoots of your vines, two joints from the last bunch of grapes. Also cut out all unnecessary and useless shoots so that the fruit, and the wood required for enlarging the vine, may receive all the strength of the roots. It is useless to try to ripen grapes well in this climate all covered up in a thicket of leaves and branches.

To Prevent a Cow Sucking Herself.—Take a stick some two or three inches in diameter, and from 2½ to 4½ feet long—the length depends on the size of the cow—the larger the cow the longer the stick. Make a mortice an inch and a half or two inches wide in each end, and put the stick between the cow's fore legs, and buckle a strap that is passed through the mortice in the stick just behind her fore legs and fasten the other end of the stick in the same manner around her neck. Neither of the straps need be buckled very tight.

'Seed Ticks,' on Horses and Cattle.—The best remedy for the evil is to wash the parts affected with strong soap-suds, and then rub well with sweet oil or hog's lard. Spirits of hartshorn (aqua ammonia) 2 ounces; sweet oil, 2 ounce; shake well and sponge the horses with it before riding through "the brush," and they will not take hold.—*Correspondent Country Gentleman.*

THE BUREAU AND THE WHEAT DESTROYERS.

The information which has for sometime been expected from the Bureau of Agriculture, on the subject of the insects injurious to wheat, has not yet made its appearance. It will now, of course, whatever it may amount to, prove too late for the guidance of wheat growers this season. Before it can be circulated the wheat sowing will be over. It does seem strange that six months should have been consumed in perusing a few hundred pages of manuscript, and deciding what portion of it is suitable for publication. Surely, the Minister of Agriculture, if he was serious in offering prizes for information in regard to wheat insects, might have found means to bring it before the public at a period when it would have proved useful as well as interesting to the agriculturists of the country. We never expected much from this source, because we had no confidence in the plan adopted,—and we so stated our views at the time,—but we thought it might result in a compilation of what was already known on the subject, which, being scattered through numerous books and periodicals, was not within the reach of farmers generally. So much we expected from Mr. Vankoughnet's prize essays. But we cannot say if they even come up to this mark, for we have neither seen them nor heard anything of their purport.

We notice that two or three journals in the interest of the government have deemed it necessary to attack the *Agriculturist*, and to denounce the writer of this article for unwarranted hostility to the Minister of Agriculture, because another journal (with which he is supposed to be connected), can see no merit in the Minister's plans, no propriety in his occupying an office, of the duties of which he was necessarily ignorant, and no principle or honesty in the government of which he is a member. Now, it may be sufficient to say to our contemporaries, that the *Agriculturist* has not, and does not intend to concern itself with mere political questions, whoever may be the Minister of Agriculture, or whatever may be the political stripe of the government to which he belongs. We have managed to pursue the even tenor of our way for some ten years, in the midst of much political excitement, without losing sight of our mission as an independent organ of the agricultural interests of Canada. We have often abstained from the discussion of questions having an important bearing upon those interests, just because they were made the foot-ball of politicians for mere party ends. We did not wish to be drawn into discussions in these pages, that would even look like partizanship on the one side or the other. We are not conscious of having published a line in the *Agriculturist* that could fairly be objected to on account of its political bearing. We have spoken favorably of some government measures relating to agriculture, and unfavorably of others, without any reference to politics or individuals, and we shall continue to do so. If any reader should deem our strictures unwarranted in any case, he will find our columns open for reply so long as he confines himself to the questions at issue.

As to the writer's political opinions, we humbly submit that so long as he does not intrude them offensively here, no subscriber can complain. His right to use other channels that may be open to him, cannot be questioned. He has never denied his principles, nor hesitated to defend them upon any legitimate occasion; but we venture

to say that thousands who read the *Agriculturist* do not know whether he goes with the government or the opposition. At all events, they have not learned the fact from these pages. So much for our political assailants.

To return to the "weevil" question. We are told by some of the journals alluded to, that it is *our* business to find out the remedies for the wheat insects, and not the Minister's. We beg to demur to this statement. We have from time to time published such information as came within our reach, and those who have read the *Agriculturist* attentively will not, probably, be much enlightened by the essays when they appear, if they ever do. It was just because no individual farmer or journalist could spare the time or means necessary to observe the habits of all these insect depredators, test the various remedies proposed, and discover new ones, that we recommended the Minister of Agriculture to take adequate measures for the purpose as a public officer, and at the public cost. We suggested the appointment of competent men in various parts of the country to make observations, try experiments, and carefully record results. Unless some such plan be adopted, we feel satisfied that but little will be added to the present fund of knowledge on the subject; mistaken views, confusion as to facts, and foolish attempts to find remedies will continue, and the mischief will go on increasing until wheat-growing will have to be abandoned. A great deal has been lost in allowing the present season to go by without making any effort to ascertain the extent of the evil, or the possibility of preventing its progress. For this omission or neglect we hold the Minister of Agriculture and his advisers, as well as the Board of Agriculture, responsible. If they can render no assistance in a case like this, then indeed the hopes excited by the establishment of these departments are doomed to a sad disappointment. Our duty as a journalist is to make suggestions; to discuss the comparative merits of different propositions; to urge the adoption of those that may, upon examination, appear best; to observe the acts of those holding places of trust, and condemn or approve without fear or partiality, as justice may point out. In the discharge of this duty we have been careful to avoid hasty conclusions, and have forborne to censure when facts and public opinion would have warranted very plain speaking. Our desire has been to secure harmony and zealous co-operation among all those, who as public officers, managers of societies, or private individuals, are engaged in the noble work of improving the agriculture of our country. The time is coming, however, when silence in regard to the mismanagement of some of our agricultural institutions will not be just to the public. There must be reform, even if some unpleasant episodes should occur in the efforts to bring it about.

POSITION OF POSTS.—Posts set in earth particularly in loose, sandy soil, which allows the air to penetrate, are apt to decay very rapidly. Inverting the position, so that they stand "t'other side up with care," has long been known as inducing a considerably increased endurance, and has been often published, but never yet sufficiently introduced into practice. This will be found worthy of trial by those planting fence or other posts.

A "magic corn-husker" has been invented by a resident of Seneca Falls village in N. York The *Reveille* of that place, thinks it one of the most useful inventions of the kind that has ever been constructed. It is said to husk corn with quickness and certainty, and will remove wet corn as well as dry. Its movement is exceedingly rapid. The "husker" is simple, and may be worked by hand.

BREEDING SHEEP—PERMANENCE OF CHARACTER.

The following detailed account of the successful experiments, made in France—and the principles on which they were founded, which led to the origin of a new breed, of excellent and permanent character,—the La Charmoise, will be read with interest.—The animals usually take prizes in France, whenever exhibited. The late Earl Spencer, so eminent as a breeder, remarked in accordance with the statements of Malingie Nouel, that the worse-*bred* the female is, the more likely is the offspring to resemble a well-bred sire; and that he should prefer, a cow of no breed, to an indifferent pure-bred cow, for a good thorough-bred bull.

"Now in all breeding, experimenters attach the greatest importance to purity of race on each side, because of the natural law by which the offspring resemble, not merely the father and mother, but sometimes the grand parents, great grand parents, and further back still. Many other observers as well as myself, have seen in young animals the clearest resemblance to some ancestor long since dead, who was marked by some distinctive feature. The purer the race of such ancestor, the more strongly do its characteristics overcome the subsequent mixture of breeds and imprint themselves on the new offspring. Would it not then have been more reasonable for French farmers to attach the utmost importance to purity and antiquity of blood in the ram, representing as he does, the improved type that is aimed at, but to avoid on the other hand, those qualities in the ewe whose defects were to be corrected? In giving motion to a projectile (for instance a cannon-ball,) the velocity obtained is not merely in proportion to the propelling force, but also to the resistance of the medium, (air or water for example) through which the body is driven. Now in our case the ram represents the power of propulsion, the ewe that of resistance; since, if there were no obstacle on her side, the complete effect would be realized by the faithful reproduction of the improving type. Clearly, therefore, the influence of the ram upon the offspring will be the stronger, the purer and more ancient in the first place, his own race may be; and in the next place the less resistance is offered by the ewe through the possession of those qualities of purity and long decent which are so valuable in the sire.

"It appeared then that in order to unite the Gordian knot whose threads I have traced, inasmuch as one could not increase the purity and antiquity of the blood of the rams (I purposely repeat the first principles of the problem to be solved), one must diminish the resisting power, namely, the purity and antiquity of the ewes. With a view to this new experiment, one must procure English rams of the purest and most ancient race, and unite with them French ewes of the modern breeds, or rather of mixed blood forming no distinct breed at all. It is easier than one might have supposed to combine these conditions. On the one hand, I selected some of the finest rams of the New-Kent breed, regenerated by Goord. On the other hand, we find in France many border countries lying between distinct breeds, in which districts it is easy to find flocks participating in the two neighbouring races. Thus, on the borders of Berry and La Sologne one meets with flocks originally sprung from a mixture of the two distinct races that are established in those two provinces. Among these then I chose such animals as seemed least defective, approaching, in fact, the nearest to, or rather departing the least from, the form which I wished ultimately to produce. These I united with animals of another mixed breed, picking out the best I could find on the borders of La Beauce and Touraine, which blended the Tourangelle and native Merino blood of those other two districts. From this mixture was obtained an offspring combining the four races of Berry, Sologne, Touraine, and Merino, without decided character, without fixity, with little intrinsic merit certainly, but possessing the advantage of being used to our climate and management and bringing to bear on the new breed to be formed, an influence almost annihilated by the multiplicity of its component elements.

"Now, what happens when one puts such mixed-blood ewes to a pure New-Kent ram? One obtains a lamb containing fifty hundreths of the purest and most ancient English blood, with twelve and a half hundredths of four different French races, which are individually lost in the preponderance of English blood, and disappear almost entirely, leaving the improving type in the ascendant. The influence, in fact, of this type was so decided and so predominant, that all the lambs produced strikingly resembled each other, and even Englishmen took them for animals of their own country. But, what was still

more decisive, when these young ewes and rams were put together, they produced lambs closely resembling themselves, without any marked return to the features of the old French races from which the grandmother ewes were derived. Some slight traces only might perhaps be detected here and there by an experienced eye. Even these, however, soon disappeared, such animals as showed them being carefully weeded out of the breeding flock. This may certainly be called "*fixing a breed,*" when it becomes every year more capable of reproducing itself with uniform and marked features. Such was my secret, which, however, has been made no secret at all, but has been declared from the first in my entries at the shows of Poissy and Versailles. Such is the origin of the La Charmoise breed of sheep.

"From the first dropping of our lambs, the strongly-marked English character gave us the strongest hope that they would retain the excellences of the English fathers; and this hope was not disappointed. The young animals as they grew up preserved their beauty of form, maintained their condition without extraordinary food, and did not suffer from weaning. The ewe lambs were carefully preserved, a few ram lambs selected; and the rest castrated.

"The next year the same cross was tried with the same success.

"The third year was still more interesting. Our first ewe-lambs, at the age of 20 months, have been put to the rams which had been saved. The offspring was most equal in quality, though proceeding from parents which were a first cross; indeed they were more level in appearance than the offspring of some native flocks.

"From that time now for some years there has been at La Charmoise a double set of lambs; one set from the New-Kent rams and the mixed-blood ewes, another from rams and ewes, the result of that cross.

"A remarkable circumstance contiuues to this very year—I mean the perfect resemblance of the two sets of lambs obtained by the two different methods. I have often divided them into lots, and then found it impossible, even by careful examination, to distinguish one set of lambs from the other. This fact is most important—it proves that the breed is established. It only remains, in order to attain the utmost fixity and perfection, that we select carefully the rams and the breeding ewes, the limit of our establishment. We have now the power of selection, in order to keep up that number; and we have great encouragement, in the prizes already won, still further to improve this breed by careful selection."

To Make Berlin fine Castings.—To produce such castings in iron, it is necessary, in the first place, to have a perfect pattern, brass being generally preferred for this purpose; in the next place, the pattern must be accurately moulded. In order to accomplish this, a fine close sand is required, (perhaps Waterford sand would answer,) which must be partially tried and sifted through a fine sieve. When the pattern has been moulded and withdrawn from the mould, the latter is dusted over with fine brick dust made from fresh burnt soft brick. The pattern is now dried, carefully returned to its place in the sand mould and rapped home with a wooden mallet and again withdrawn. If the mould has been sufficiently dusted, it will have a surface as fine as the pattern. The mould or flask is now put into an oven and dried. Before it is quite cold, it receives a coat of lamp black, by putting some oil in an open dish, and using a large wick so that it will burn with considerable smoke. The mould is now held over the smoking oil until it is sufficiently coated with lamp black; when this is accomplished, the flask is closed, clamped or screwed together, and is then ready for the molten metal. This is the way the fine Berlin castings are made. I have seen quite a number of these castings made in our country, by a Berlin workman, who was in my employ.—A Subscriber *in Scientific American.*

Dead Animals.—We have just seen some elaborate discussions on the way of disposing of dead animals. The space might be saved as well as not. If the carcasses are small bury them in a manure heap, and let the whole lie a few months. The mass will all be good manure then. If they are large bury them in the ground, in an orchard or garden, when the decaying matter will be taken up and used by trees and plants, or if you can do so easily cover the whole with clay and turf, till all the bones shall be decomposed. Use the covering for manure, and put the bones beneath the roots of the next apple trees or pear trees you can transplant. You can thus profitably dispose of all the carcasses, from a dead mouse to a dead ox, that may encumber grounds.—*Exchange.*

A FEW REMARKS ON AGRICULTURAL CHEMISTRY.

"People thrashed their corn with fiery flail,
And ploughed with horses harnessed by the tail."

It will be necessary in the course of the present remarks to employ a few technical terms, which might at first appear difficult to some, but the difficulty is only imaginary, and will soon vanish. Every trade and profession, even that of the husbandman has its technical terms, which appear very hard looking to those who hear them for the first time; but these terms do away with the trouble of long descriptions, and, when once acquired, greatly facilitate our progress.

We will endeavour to give an outline of some of the leading principles of agricultural chemistry, and to make use of the most simple and familiar language, so that the subject may be easily understood and remembered. To assist the memory and facilitate reference, the following arrangement will be observed.

I. The food which our crops require for their support.

II. The origin and composition of natural soils.

III. The nature and use of artificial soils or manures.

First, then, of the food or materials which our crops require for their support.

It will be evident, that a knowledge of the food which plants require for their growth, and of the essential conditions upon which their life and perfection depend, must be regarded as of the greatest importance to the practical farmer. Agricultural chemistry teaches us, that, for the support of the life of plants—for the growth of the stalk—for the formation and perfect development of the seed—*sixteen* substances are required, and that of these the plant can procure only *four* from the air which surrounds it, and the water it drinks in from the clouds; the remaining *twelve* substances must be procured from the soil in which it grows, or be supplied by the agency of man, when the soil does not contain them.

It was formerly erroneously supposed that the atmosphere, as that immense ocean of air which surrounds us is termed, was a simple element;* but it is now well known that it is most complex in its composition, being a mixture of certain *airs* or *gases*, known among chemists by the names of OXYGEN, NITROGEN, and CARBONIC ACID, and containing diffused through it at all times, a small but essential quantity of AMMONIA,† and a variable proportion of WATERY VAPOUR. The three substances last mentioned, carbonic acid, ammonia, and water, are compound bodies. Carbonic acid being formed by the union of oxygen gas, with a black solid inflammable substance, having the appearance of charcoal, called CARBON; ammonia being a compound of two gases, nitrogen and hydrogen; and water being composed of the latter, and oxygen. It is by the decomposition of these compound bodies that the growing plant

* By the term *element*, chemists understand a simple substance from which no other kind of matter can be procured; thus iron is an element, as we can procure from it nothing but iron, while sulphate of iron (the substance commonly termed green vitriol) is regarded as a compound body, as we are able by chemical processes, to procure from it two kinds of matter, sulphuric acid and iron.

† Ammonia is a kind of air which, when mixed with water, forms the liquid sold under the name of hartshorn. It produces the peculiar pungent smell which we perceive in stale urine, in hot stables, and in the neighborhood of badly kept manure heaps.

receives those elements which are supplied to it from the atmosphere, and which may be regarded as the essential constituents of its food. Those who have seen a bulbous plant, the hyacinth for example, thriving vigorously in a glass of water, know that the presence of the soil is not a necessary condition of vegetable life; but to all those plants which are the subject of the farmer's care, the presence of the substances contained in it is absolutely indispensable. During the life of a plant, the carbonic acid which is taken into its circulation undergoes decomposition, its oxygen is given off from the leaves, while its carbon remains behind, and becomes a part of its structure: and, by certain processes, we are able to discover that it forms nearly 50 per cent. of all our cultivated plants.* Ammonia and water also undergo decomposition when absorbed by plants—the former yielding to them its nitrogen, the presence of which is necessary to the formation of some of the most valuable ingredients of our crops; and indispensable for the support and nutrition of animals using them as food and the latter supplying them with hydrogen, which is essential to the production of their starch and oil.

If we take some pieces of straw, or a few grains of wheat, and hold them on a piece of metal, a tea-spoon for example, over the flame of a lamp so as to heat them strongly, they will char and burn away, leaving only a small quantity of ashes. That which disappears is usually termed the ORGANIC part of the plant, and consists of the four substances, Carbon, Nitrogen, Hydrogen, and Oxygen, which have just been described as the elements supplied to the plant by the atmosphere. The incombustible matter which remains behind, when examined, is found to contain all those substances which the plant had withdrawn from the soil, and is termed the INORGANIC part of the plant. Again, if we take a piece of animal matter, such as a bone, and expose it to a strong heat, we find that a part of it also will be consumed, its organic part, and that an incombustible matter will be left containing nearly the same substances as were contained in the inorganic parts of wheat. During the decay and putrefaction of both plants and animals precisely the same thing occurs as we observe when we expose them to heat, their carbon, nitrogen, hydrogen, and oxygen, gradually escape into the atmosphere, from which they were originally derived, and there unite together once more to form the carbonic acid, the water, and the ammonia, which are destined in process of time, to build up the bodies of another generation of man and animals, and to clothe the face of the earth with a new vegetation. The inorganic part of a plant weighs considerably less than the organic, as is found upon repeating the simple experiment described above, with a portion of any vegetable substance. Burn, for example, 100 lbs. of potatoes, and we will not procure more than about four pounds of ash; yet this small portion of ash is as essential to the full growth of the potato as the 96 lbs. which we burn away.

* 100 parts of the following substances, when all their moisture has been expelled by drying, contain—

	CARBON.	HYDROGEN.	OXYGEN.	NITROGEN.
Wheat (the grain) ...	46·1	5·8	43·4	2·3
Oats do. ...	50·7	6·4	36·7	2·2
Potatoes................	44·0	5·8	44·7	1·5

The quantity of dry material contained in 100 parts of those substances is, in Wheat, 85·5; Oats, 79·2; Potatoes, 24·1.

The great object of all cultivation is to introduce into plants those substances which are adapted to the food of man. In their natural state they receive, from the air and the soil, merely food enough for their own support, the elements required to form the blood of man are contained in them in very small quantities. It must always be borne in mind by the farmer, that our cultivated crops are in a state as much unlike that intended by nature as the stall-fed ox, which has been made to attain an enormous development of fat by excessive supplies of the most nutritious food, is unlike the cow which is obliged to seek its nourishment over the extensive range of scanty mountain pasture. Transplanted by man from their native soil, and collected for his convenience around his dwelling, there has been produced by art a forced and unnatural development of all their parts, but especially of their seeds, and to maintain this forced development the utmost care of the farmer is required; for should he trust his fields to nature, his crops would again return to their natural state, or perhaps entirely disappear. It is well known that the produce of an acre of the wild potato in Chili, its native country, would scarcely suffice for the daily consumption of an Irish family, yet the wild plant and the cultivated are equally exposed to the influence of the atmosphere; the difference in their value as food must therefore depend entirely upon the amount of nourishment supplied by the soil. When the incombustible matter which remains behind after burning a piece of animal matter, such as bone, is examined by the aid of chemistry, we find that it consists chiefly of an acid containing phosphorus, called *phosphoric acid*, with some *lime* and *magnesia*. The composition of the ashes of animal matter is similar to that of the incombustible part of vegetables, and we find if we examine a table in which the composition of bone, and of the grain of wheat is given, that the bones of animals contain from 67 to 68 per cent. of inorganic matters, consisting chiefly of compounds of phosphoric acid, (*Phosphates*), while wheat contains so much as 96 per cent. of the same substances. It was evident then, that upon the presence of the phosphates in our wheat, its value as food chiefly depends. The successful practice of agriculture requires that the farmer, whose object it should be to produce the largest amount of food upon the smallest possible ground, should make himself acquainted with the mode of supplying his crops with those substances which are indispensable to their full development. If those substances do not exist in his fields in sufficient quantity, his wheat and his other crops may spring up, but they will not thrive—and even if they did grow they would be useless as food; for, unless the plants which we consume contained phosphoric acid, magnesia, and lime, our system could no more form bone or muscle, than a carpenter could form a table if we kept from him the wood.

For thousands of years men have been content to remain ignorant of the beautiful relations which, ever since the creation, have connected together animal and vegetable life. They composed learned treatises upon the geography of the moon, and the nature of its inhabitants, while they neglected to investigate the composition of the soil of this globe, and of the plants which ministered to their own existence.

The careful study of the food of plants by Liebig, gave us the first correct notions respecting the true constitution of the soil, and of those curious processes by which

the incombustible inorganic substances just described, enter into the circulation of our grain and other crops which are cultivated as food, and led the way to the establishment of agricultural chemistry, upon the immoveable foundation of observation and experiment. Before that, when any of those inorganic substances were discovered by the chemist to be contained in plants, it was imagined that they were there only by accident; but it has now been proved beyond all question, that they are invariably present in our crops, contributing not only to their growth, but, by a wise and beautiful management of the Creator, affording to animals those substances required for the formation of their bodies. Upon analysing the dung, and other excrements of animals, we find that these inorganic matters are again discharged from the body, again to be taken up by the vegetable tribes: and thus, ever on in an eternal round, they perform the part assigned to them in the economy of the universe, in contributing to the support of organic life!*

Amongst the most interesting and instructive researches which have lately been made respecting the substances which plants withdraw from the soil, are those of two German chemists, Weigmann and Polstorff. These philosophers caused the seeds of different species of plants to vegetate in sand which had been heated to redness, and treated with acids, so as perfectly to remove all organic matters; and also in artificial mould, made by mixing together the substances which are contained in fertile soils. By careful analyses of samples of the seeds employed in these experiments, the exact quantities of the inorganic elements contained in them were ascertained. The soils prepared as described, were carefully protected, by being enclosed in cases, and watered with pure water free from ammonia. In the pure sand it was found that the plants shot up, but soon decayed; while in the artificial soil they flourished vigorously, producing ripe fruits and perfect seeds. The plants obtained in both cases were analysed, and the result was, that the plants grown in pure sand contained about twice the weight, and those grown in the artificial soil from four to five times the weight of inorganic substances in the seeds used. To ascertain how the increase in the weight of the inorganic elements grown in what was considered as pure sand had occurred, a portion of it was submitted to analysis, and was found to contain silica, potash, lime, oxide of iron, and other substances, resulting from the decomposition of some grains of felspar (one of the ingredients of granite) which were contained in it, and which had been rendered soluble by the action of the carbonic acid of the atmosphere.

Thus when we understand that plants extract from the soil the inorganic substances existing in it, we easily comprehend how what is termed *exhaustion* of a field is produced; for, let us suppose, that in the soil of a field there are just 520lbs of one of those substances, silica for example, which is particularly required for the growth of wheat, and that by an examination of the whole amount of crops raised in the field, we find it has taken up 260lbs of that substance, it is evident that if we raise another crop of the same kind, in the following year, the field must have no silica for

* The inorganic substances which have hitherto been discovered in the ashes of land vegetables are, according to the researches of Drs. Will and Fresenius of Giessen, as follows:—Potash soda, lime, magnesia, peroxide of iron, oxide of manganese, silica, phosphoric acid, sulphuric acid, carbonic acid, chlorine, flourine.

plants in the third year, and the soil will then be exhausted for wheat. But different plants require different quantities of silica, and the other substances supplied by the soil for their support; so it happens that a soil which has become exhausted, and totally barren to one description of crop is, in the highest degree, nutritious to another. Thus, upon a field which would yield inorganic substances sufficient for the growth of one crop of wheat, we can raise three crops of oats, and in a field containing the quantity of silica 267lbs mentioned as required for one crop of wheat, we would have more than sufficient of that one element for five harvests of peas. It is upon the knowledge of this fact that the *rotation of crops* is founded the judicious application of which has been of so much service to agriculture. We are now prepared to believe that the presence of the inorganic matters which remain after burning a plant is not accidental, but that they form an essential part of its food, absolutely necessary to its full development. Different plants require different *proportions* of those elements for their growth, and it will at once suggest itself, that it is only by obtaining an accurate knowledge of these proportions that we can, with any degree of certainty, decide upon the kind of soil best adapted to the production of any species of crop. It is only by the assistance of the chemist that we can hope to acquire this indispensable knowledge.

How to Save your Trees.—If you find some of your transplanted trees flagging, and looking as if they were going to say good-bye to you, don't imagine you can save them by pouring manure water about their roots. You might as well give a man nearly dead with debility and starvation, as much plum pudding as he could make a hearty meal of. The best thing you can do is, first to reduce the top a little more (or a good deal more if needful), for the difficulty most probably is, that we have more top to exhaust than root to supply. Then loosen the soil, and water it if dry, and lastly, *mulch* the ground as far as the roots extend. This you may do by covering it with three or inches of straw, litter, tan-bark, or something of that sort, to keep the roots cool and moist, so as to coax them into new growth. Watering a transplanted tree every day, and letting the surface dry hard with the sun and wind, is too much like basting a joint of meat before the kitchen fire, to be looked upon as decent treatment for anything living. If your tree is something rare and curious, that you are afraid will die, and would not lose for the world, and yet that won't start out, in spite of all your wishes, syringe the bark once every night after sunset.—*Downing.*

Beans for Sheep.—Bean straw is valuable for sheep, and when properly cured they eat it with avidity. In a chemical analysis of beans, it is found that they abound with a greater quantity of the elements of wool than any other grain or vegetable, to make sheep produce heavy fleeces. They will eat them with avidity, whole or ground, even in a damaged state. To our store flocks during the winter season we generally give a pint of beans per day, and potatoes. Corn is good for fattening sheep, but not so valuable as beans, oats, and most other grains, for the production of wool.

To Destroy Grubs in the Head of Sheep.—Make a hole in a standing board, 24 inches from the ground, and large enough to let a sheep's nose through up to the eyes. Let one man hold the sheep in this position, another with with a syringe throw up each nostril of the sheep a slush of yellow snuff and water, strong enough to make them sneeze, and they will thus throw out the eggs of the fly that are deposited in July and August.—*Cor. Ohio Cultivator.*

Lemon Juice in Dropsy.—Lemons are recommended for dropsy in a Russian medical journal, and are said to be benefical in the most hopeless cases. The first day one lemon was given, after taking the peel off, and cutting it up into small pieces in sugar; the two following days three were given, and afterwards eighteen every day. For nourishment, meat was given. In every case the water came off on the seventh day.

THE WHEAT CROP AND ITS ENEMIES.

We are glad to notice a very general disposition among those who do not, as well as those who do, cultivate the soil, to render aid in checking, if that be possible, the progress of the enemies now threatening the destruction of our wheat crop, the staple production of Western Canada. The press has for some time teemed with articles, communications, and suggestions on the subject, and much useful information has thereby been disseminated. In some townships the farmers have met together and compared notes on the subject. We find the following report of one of these meetings in a Haldimand paper; and though some of the views propounded are obviously unsound and not remarkable for shrewdness, yet the report as a whole is worth perusal. It may suggest to the farmers of other townships the propriety of meeting together for similar purposes more frequently than they do.

Report of a meeting of the farmers of the township of Sherbrooke, held on the evening of 8th August, 1857.

A. McD. Lockhart, Esq. being called to the chair, and Wm. Chalmers, Jr. acting as Secretary, the Chairman opened this meeting in substance as follows :—

" Gentlemen, the object of this meeting as you all know, is to consider the extent and cause of the deficiency of our wheat crop, and to suggest if possible, a remedy for the evils in future. The causes, as it is generally admitted are three in number, viz: An unpropitious season, rust, and insect destroyers. The atmospheric cause operated in this way, seeding was dry and very late, the tender plant had to contend with the most trying of winters, the spring was wet, cold and late, the plant was thus checked in all its earlier stages of growth, and hastened through its later stages by weather unusually warm and accelerating, maturity being hastened too rapidly, a shrivelled grain is the consequence; however, to know that this cause existed and that prevention was beyond our power is all that can be said.

Of the rust I am happy that I can speak to the meeting in well satisfied assurance. Science has made the investigation, and I have merely to relate to you the result of her disclosures. A number of years ago, rusted wheat was examined by the microscope, and rust was ascertained to be a minute parasitic plant, growing on the wheat stem exactly as moss does upon trees or mould, which is also a perfect plant, upon soft vegetable and animal matter. The rust then is a plant, perfect in all its parts, as much so as the largest oak in the forest, and carries its seed as the oak does its acorn; but its resemblance to moss on trees is the most striking. Trees in and around swamps are the most covered with mosses, and wheat on and around what had once been swampy is the most rusted; the remedy then becomes apparent, reduce the black vegetable mould by exposure to the sun, by sowing with crops requiring to be hoed, as corn, potatoes, turnips, &c., and by plowing deep and mixing with the solid soil beneath, and lastly by using every possible means to keep the surface dry, as without moisture the seeds of this plant cannot germinate. Now this moisture is supplied by exhalation from the surface of spongy wet ground, by a heavy dew, continuing most of the day under a cloudy sky, with still warm air, and by slight frequent showers with heat.

We come now to the most recent, most difficult and darkest part of the subject of enquiry, *The insect destroyers*, and here I am at a loss what to say. I know too well they exist, but how, or in what shape they come into existence, through how many stages of being they pass, where their abiding place is before coming into the wheat or after leaving it, and what is the term of their natural life, and many other things connected with those unwelcome visitors, I feel no shame in confessing that I am profoundly ignorant; the government has encouraged the enquiry by offering premiums for the best essays, or in other words, the fullest investigation into the whole subject. Government has been blamed and ridiculed for this, it is in my estimation, the only hope of success, and yet hope falters, not because the Province is lacking in men equal to the task, but because those men, really qualified, may lack time and opportunity to continue their investigations to the full development of the question. There are at least two distinct insects which attack the kernel, the one in form of a caterpillar, the other in form of insect larva.

The former large and active, the latter small and with little animation and of a bright orange colour. Although from the opinions I have already expressed, I anticipate little that is really valuable to come from farmers who are farmers only. Yet it is well for every one present who has an opinion on the subject to give that opinion fully; nevertheless, I would venture to forwarn them that mere opinion unsupported by facts in this, as well as in all other investigations, is of very little real value. And we must look to science at last for a full revelation of what is now dark and mysterious; and as an illustration of the truth of what I say, I would refer you to what I have already stated, about rust. What farmer would have ever discovered the exact truth, and although it has now been discovered for years, how many are there that know the simple but valuable fact, and how many are there still giving their vague unsupported *opinions*, their "stands to reason," *beliefs*, about overflow of the juices, bursting of the straw, running down the stalk, dropping on the leaf and all that: and how many are still talking of being struck with rust, as trees are struck by lightning? Then there is the bug in the pea, which has been with us now for many years, and how many foolish, uncertain, doubtful, disputed notions do we not hear about that insect? And who is nearer the truth now than when it first made its appearance among us?

The chairman after stating that it is our duty to give our views to the world, and trusting that many other townships would follow our example, called upon Mr. Logan, who he understood, had some valuable suggestions to lay before the meeting.

Mr. Logan then rose and promulgated the following.—The speaker had not the same respect for science that the chairman had, he believed that a grain of experience is worth an ounce of theory, as many might be skilful in hunting bees, but the man that cut the tree down got the honey. He did not care where the pesky things were born, how they were brought up, or who went to their funeral, if he could find an easy way of throwing snuff into their eyes, or salt on their tails, and so get rid of them, it was all he wanted to know: now he believed he had an easy and effectual way of doing the same thing. Every one had seen a candle set down in the month of July, the candle immediately surrounded with thousands of small flies, and hundreds of dead corpses lying at the foot of the candle stick—that was his plan and he took it from nature. and nature was fact—he would make a great many bright glowing lights all around the field every evening for a week or so, just at dark, and he would warrant the meeting that every weevil, fly and midge, to say nothing of a whole host of other kinds of vermin would be completely eradicated and never muster in the ranks of war again.

Mr. R. Spec asked the speaker if he had tried it.

Mr. Logan replied that he had not, but was sure it would succeed.

Mr. Spec then said, try it first and then make us convinced afterwards.

Mr. Spec then rose and said, that in his opinion, the only effectual way to extirpate the weevil and caterpiller, was to pass a prohibitory act against the sowing of wheat, except in small experimental quantities, not exceeding one tenth of an acre for a number of years, or until the insects had entirely disappeared; that he said was the only way the bug in the pea could be exterminated, and he had thought of writing to our representative Mr. McKenzie, to that effect.

Mr. Logan asked if he had tried it.

Mr. Spec said he had not sown peas for several years.

Mr Logan again asked if the bugs were gone.

Mr. Spec replied that his neighbour this year has a fine field of peas of a superior quality, and there does not appear to be a bug in them.

The chairman doubted the wisdom of any government trammeling the industrial resources of the country by any prohibitory act.

Mr. Spec concluded by saying that in his opinion the crop of wheat throughout this township is not more than one third a common average.

Mr. S. Hood then rose and said he was almost a stranger in the Township, but that the question before the meeting was one of such painful interest, that he would not stay back on that account. He, too, in common with others, had his own ideas on the subject. His own observations and the reports of others, convinced him that the outside of the field was most attacked, and that the centre was comparatively unharmed; from which he would infer, that the insects originate in the grassy borders along the fences and grassy spots around stumps. A few accidental ears of bearded wheat in the centre of a hay field contained more weevil than any similar number of ears in his wheat field. Does this show that grass lands are favorable to their production?—If so, wheat should not be sown

in juxtaposition with grass lands, the fences should be removed, and the strip of ground they occupy ploughed up, but whether they burrow in the ground, or find shelter beneath this grass, or lodge on some part of the plant, or like the musquito, pass the day in any shady place; or, whether, like the musquito, moisture is absolutely necessary for their reproduction, or, like other insects, pass through their transformations regularly, have all to be brought to light by the skilled and practiced naturalist, a task in which we farmers do not know how to take the first step. Science alone is able to grapple with the matter, and it is wonderful what science has achieved in other departments of industrial art, and still greater no doubt are the discoveries yet in store for her. Entomology has heretofore been considered by many as an useless waste of intellectual application. So also was Electricity only a few years ago, amusing, curious, but nothing more, and little did Galvani think when he employed a pair of zinc and copper plates to set a dead frog dancing, or Voltaire, when he multiplied the combination, that the science they were then founding, would, within half a century, be employed in transmitting news of the utmost importance thousands of miles with a speed only surpassed by the light of the sun, in multiplying works of art in metal, in engraving, in producing light of surpassing brilliancy, and many other applications equally wonderful.

With regard to Government and their prize essays, my only complaint is that the Government has not gone far enough in the same direction. Sir William Logan and a numerous staff have been employed for a number of years in investigating the mineral wealth of the Province, and excellent service has the good knight rendered his country. This is as it should be, this is making science the pioneer of art. Cannot the same rule hold good as regards agriculture, decidedly the most in need of scientific aid. The poor farmer is forever compelled to grope in the dark with nothing to guide him but his own untaught judgment. And yet I believe the day is not far distant when the farmer will consult scientific and professional agriculturists in all his important operations, as he now consults a physician with regard to the health of his family.

The British Association suggests to Government certain investigations, likely to promote the public welfare, but beyond the fiscal powers of the Association. Parliament grants them funds to carry out their views, and much good has resulted; we have a miniature of the Association in the Canadian Institute; let the Institute name a Committee, and Government furnish the means, and in the lapse of, say two years, authentic information could be arrived at. Those who persist in practical men—meaning farmers—alone, to prosecute the subject, are deeply in error. Those who expect farmers, who govern themselves in sowing, reaping, and other operations by the change of the moon, and are in the constant habitof employing knavish Doasterswivels, with the crotch of witch-hazel, to show them where to dig for spring water, must be as far gone in lunacy as the deluded farmers themselves.

After various remarks by Messrs Niece, Root, Chambers and others, the meeting was adjourned for two weeks, when the subject would again be resumed.

SHERBROOKE, August 8th, 1857.

MALAGA RAISINS.—HOW PREPARED.—The process is the most simple imaginable. As soon as the grapes begin to ripen, the vinedressers pass through the vineyard, and cut the clusters off from the vines, and leave them on the naked ground, turning them over daily, until the heat of the sun and the warmth of the earth upon which they lie, have baked and dried them, when they are gathered up, put into boxes, and are ready for use. This is all the wonder and mystery there is in preparing this delicious fruit. To my inquiry why they did not place leaves, or some clean substance of the kind upon the ground for the fruit to lie upon, I was told that naked ground was much better, that in fact, the fine flavour of the fruit was dependent more upon the warmth of the earth, than the more external heat of the sun. Care has to be taken, however, that the fruit does not get wet while undergoing the process. But as it seldom rains during the summer or vintage in this country, it is very rarely that the fruit has to be taken up before it is dried.

SWALLOWING POISON.—If poison should be swallowed accidently, take two tablespoonfuls of ground mustard, mixed in warm water. It will operate as an instantaneous emetic.

Good fruit is something more than a mere luxury; it is highly nutritious and conducive to health. Every family should be well supplied with it; and children be allowed to eat of it freely *when ripe*.

TO CLEAN CHESS OUT OF WHEAT.

It is supposed by some farmers that wheat actually turns to chess in the process of growing. The following communication to the *Genesse Farmer* by John Johnston, of Geneva, N. Y., will throw some light on the subject.

"Some twelve or fourteen years ago, two farmers and myself went to call on an enterprising farmer, not fifty miles from where I now write. We found him sowing wheat. He quit his work, and politely showed us over his farm, out-buildings, &c., all of which were neat and well arranged—showed us what improvements he had made by under-draining, &c., and asked us politely to stay to dinner, which we declined, as we had other arrangements. We accompanied him into the field where he had been at work, and I put my hand in a bag of wheat and took out a handful to look at it, but what was my surprise to find it full of chess! I said I was astonished to find a man of his reputation as a farmer sowing chess. He looked me right in the eye, evidently irritated by my abrupt reproof and said, 'How the h—l would you help it, when it was there?' I told him I would blow it out. He looked up again evidently a good deal irritated, and said, 'Neither you nor any other man can clean it out. He had a first-rate mill, and had put it four times through, and yet there it was; and he said he would bet me one hundred dollars that I could not clean it out. I told him it would not be justice in me to bet with him, as I had done the same thing so often that I knew I should have no difficulty in doing it; but if he would take a bag of wheat to the barn, if I did not clean out all the chess in going once through the mill, I would pay him five dollars for his trouble. He said 'done,' and took the bag on his shoulder and started for the barn; but before he got out of the field he threw it down, saying he had 'plenty of the same kind in the granary. After going to the barn, I took off the shaking-rod of the fanning mill, and took out the riddles. We carried the fanning mill into the granary, and I requested one of my companions to turn the mill steadily, not very fast, and not to stop until I notified him that it was all out of the hopper. I put in the wheat, and we run through about two bushels. The owner carried it to the barn floor, near the door, and all the three gentlemen got on their knees, and examined it, and they could not find one chess seed. After examining thoroughly, the owner rose from his knees, saying in a subdued tone, 'I see a man can never be too old to learn, and I have learned something. I then said, 'Gentlemen, you had better look behind the mill—perhaps there was no chess in the wheat!' The owner said he knew 'there was plenty of chess in it. To make sure, I went and swept up behind the mill, and I should think I got at least four quarts of chess. The owner then said, 'Gentlemen, your horses shall go in and be fed, and you shall not leave until you take dinner. I have got paid for many dinners.' So we dined, and got an excellent dinner, and left without saying 'chess' again.

"I have never had the pleasure of calling on the gentleman since. I have thought I should like to see his wheat, to ascertain if he raised chess. I have seen him often since, but I never mentioned 'chess" to him, as I knew he felt a little grieved at his obstinacy in not believing me. I have been thus particular in making a long story out of a little matter, to try, if possible, to induce men to clean their seed, so that there may be no 'more wheat turning to chess;' but as long as chess is in your neighborhood, you are always liable to occasionally having a little. Your neighbors' cattle may get on your fallows when they have been eating chaff with chess in it, or swine when they have been eating screenings of wheat with chess in it. You may in this way get chess from their droppings, but still that will only be a trifle.

"Now, brother farmers, I beg you will try blowing the chess out of your wheat for a few years, and I know you will never again say wheat produces chess. I wish you Messrs. Editors, would go up the Genesse Valley about seeding time, (I mean wheat sowing,) and see that they sow clean wheat. I know that some of the best wheat growers in the country believe wheat that is damaged by the treading of horses or cattle, or nibbled off close by sheep, geese or turkeys, produces chess. Now, I know they are mistaken. It is only because the wheat is killed, that the chess gets a better chance to grow. Those who sow chess, get chess; those who do not sow it, do not get it."

Lemon Pie.—Pare 2 fresh lemons, chop the rinds, and grate the rest. Take ⅔ cup of flour, 3 cups of sugar, 2 water, 1 egg. Beat thoroughly.—This will form material for 3 pies.

WHEAT IN WESTERN NEW YORK.

(*From the Rochester New Yorker.*)

The culture of Winter Wheat has to a large extent been abandoned in Western New York, and in many instances to the profit of the farmer. If, for instance, it has been pursued upon a poor soil—one worn by long culture of this grain, perhaps, or by methods of husbandry unsuited to its wants, and but partially developing its productive capacity, it has been followed without profit, and may be well laid aside for other branches of agricultural production. Cropping with wheat regardless of the character of the soil, regardless of the changes of seasons which seem to have taken place, and above all regardless of the character and habits of the new and potent insect enemy it must now contend with, has resulted in the loss of millions to the farmers of Western New York. Yet with proper attention to these influences, we would still advocate a share of attention to this late great staple of this section of the country.

What are the demands of the wheat plant, and what the causes of its general failure among us? A partial consideration of these questions will show us, that under certain circumstances its culture is still profitable, and that under other certain circumstances we but throw away the labour and expenses of attempting its production.

To grow wheat, we need a fertile, well-drained soil, either a porous but heavy loam, or a clayey soil made porous by artificial drainage. A soil containing lime, and above all rich, so that it shall be capable of sustaining a vigorous and healthy growth, is *now* a necessity of the wheat crop. It must be a porous soil, that the plants may not winter-kill, and that their maturity may not be retarded by a late, wet spring and summer. A rich soil, if liable to suffer from the long continued rains of spring, will be a cold soil as well, and produce an unhealthy vegetable growth, maturing but slowly as well as unevenly, and hence extremely liable to the various casualities which affect the wheat crop. What is called a *warm, quick soil* is needed, as that secures healthy and perfect growth.

Another demand of the wheat crop is *early sowing*, so that the plants may get a fair autumn growth, be prepared for the rigor of winter, and for tillering, so as to fill all the ground in the spring. Early sowing also tends to hasten the ripening of the crop, at least to some extent. Attention should also be given to selecting the most productive and vigorous varieties,—those of early maturity, of course, are to be preferred.

That the soil be well tilled, is also a requisite of the wheat crop. It should be in *the best order* possible; if manured at this time, the fertilizer applied, should be intimately mixed with the soil, and near the surface as may be. Let the land be in fine tilth, and then drill in the seed, and an additional security is had against winter-killing and other injuries consequent thereon.

The alleged cause of the failure of the wheat crop, and its consequent abandonment, is the *wheat midge*, and its ravages have been truly appaling. But many serious failures occurred before this injury became general, or was considered of much account—failures from *poverty of soil* caused by wheat after wheat, &c.,—from *lack of drainage* and consequent winter-killing and rust,—from *late sowing* on imperfectly prepared ground, also inducing blight and rust, and from *poor management* generally. All these causes prepare the wheat plant for the attacks of the midge, and it will generally be found that the poorer and later the wheat, the less there is left by the weevil to reward the labor of the farmer; while the best wheat, *the brightest, earliest and heaviest growth*, though injured to some extent, still yields a fair product, and pays at present prices a good profit.

The average injury by the midge in many instances known to us, has been from five to seven bushels per acre—the lighter and later the wheat, the greater the comparative loss. A light yield say ten bushels per acre, will be one half or more destroyed—a good crop of twenty-five or thirty bushels per acre, will seem comparatively uninjured, though one sixth of it has gone to feed the insect. Hence the importance of securing a good growth, for a light one fails to repay the labor of its production. Hence we advise the sowing of *only* such soils as are in fertility and characteristics *suited to the crop*, and of *sowing these early to vigorous and early maturing varieties.* Let our farmers again select such soils and situations, and sow wheat again, but only so much as they can put in in the best order on a rich, warm porous soil, and we think they will not long have occasion to buy flour or use so largely of other grains as many are now obliged to do.

One breed of animals does not suit all localities. Mountainous regions, bleak northern latitudes, rich warm pastures, and torrid climates, each have their own peculiar species.

A STORY FOR LARGE FARMERS.

The last number of the *Farmer's Magazine* contains the following under the head of "Mr. Bakewell's anecdote, *alias* good farming in a nutshell." The lesson inculcated is one which so many farmers would profit wonderfully by learning, that we transfer the article to our columns:—

"The far-famed Mr. Bakewell, of Dishley, Leicestershire, the founder of the new Leicester sheep, and the man who lived a century before his day, used to tell an anecdote with exceedingly high glee as a farmer of the olden school and golden times. This farmer, who owned and occupied 1,000 acres of clay land, but poor in point of money, had three daughters looking their father very hard in the face for money. He went to Mr. Bakewell to know what to do for them. Mr. Bakewell told him to keep his money and give each daughter some land, and make it known that he would do so, and he would very soon lessen his family at home. He then made it known that he would give his eldest daughter 250 acres of land. I need not add that the lady had forthwith plenty of beaus to choose out of: the father's house was haunted with young men, and she soon got married, and the father gave her the portion that he promised, but no money; and he found by a little more speed and better management, the produce of his farm increased. Three years after he made it known that he would give his second daughter 250 acres of land, which drew shoals of beaus, and she soon got married, and her father gave her her portion. He then set to work and begun to grub up his furze and fern, and ploughed up some of his poor furze land—nay, and where the furze covered in some closes nearly half the land. After giving half his land away to two of his daughters, he found the produce of his farm increased; because his newly broken up land brought him excessive crops. At the same time he farmed the whole of his land better, for he employed four times the labour upon it; had no more dead fallows the third year; instead of which he grew two green crops in one year, and ate them upon the land. A garden, Mr. Bakewell told him, never required a dead fallow. He no more folded from a poor grass close to better the condition of a poor ploughed one. But the great advantage was, that he had got the same money to manage 500 acres as he had at first to manage 1,000 acres.—Three years after the second marriage, he made it known that he would give his third and last daughter 250 acres of land. She had a beau who stood in readiness, and three or four more within call, and she was married in a week. She thought it never too soon to do well, and the father portioned her off with land. He then began to ask himself a few questions, how he was to make as much of 250 acres as he had done of 1,000 acres. He found necessity was the mother of invention. He then paid off his bailiff, who weighed twenty stone; he found that he had been helping the men to manage the master, instead of helping the master to manage the men. He then rose with the lark in the long days, and went to bed with the lamb. He got much more work done for his money, for instead of saying to his men, 'Go, and do it,' he said, 'Come, my boys, let us go and do it." He found a great difference between "come" and "go." He made his servants, labourers, and horses move faster—he broke them from their snail's pace: he found the eye of the master quickened the pace of the servant. He grubbed up every bit of furze on the farm, and converted a great deal of corn into meat. He preserved the black water, the essence of the manure, and conveyed it upon the land. He cut down all his high hedges, straightened his zigzag fences, cut his serpentine water-courses straight, and gained much land by so doing: made dams and sluices, and irrigated all the land he could. Some of his hedges and borders were covered with bushes from ten to fourteen yards in width, and some of his closes were no wider than streets; and there he grubbed up the hedges and borders, and threw several little closes into one. He found that, instead of growing little thorn-hedges and haws, to feed foreign migratory birds in the winter, he ought to grow food for man. "I sold him long-horned bulls, and let him rams," said Mr. Bakewell," and told him the value of labor, and what ought to be performed by a certain number of men, working oxen, or horses, within a given time. I taught him how to sow less, and plough deeper and better, and that there were limits and measures to all things; but, above all, the husbandman ought to be stronger than the farm. I taught him how to make hot land colder, and cold land hotter; light land stiff, and stiff land lighter I advised him to breed no inferior cattle, sheep, or horses, but the best of each kind, as the best consumed no more food than the worst. Size has nothing to do with the profit. It is not what an animal makes, so much as what it costs making.

My friend became a new man in his old age, and died rich, by Mr. Bakewell's improved management.

WINTER-KILLING OF GRAIN AND OTHER PLANTS.

The phenomena which are commonly classed under this head are various, and the causes which produce them must also vary. Some of them are undoubtedly beyond our control; but others it is in our power to obviate, or at least to alleviate. More careful observation, and a collectiod of facts, will aid in determining these causes and the corresponding remedies.

Winter grain, as wheat and rye, suffer more than the common grasses, yet they will often endure an exposure which is astonishing. Last winter, rye, with a bare surface exposed to the fiercest north-westers, during a zero temperature, not only survived, but came out in fine condition. But, if this exposure is accompanied with frequent freezings and thawings, the result is different—the roots are thrown out of the ground, torn and weakened, and if the plant lives at all it retains but a feeble vitality. Clover, under the same circumstances, suffers even more severely and entirely dies out, when the rye may live. This freezing and thawing is more destructive where the soil is moist or of a tenacious character, called *heavy*. The roots of clover are in this way so laid bare that they would die even without the cold. Some other plants as parsnips, are killed by this severe freezing in a damp soil, or where water stands on the surface. In the spring several inches of the top of the root will be found decayed, while the lower part remains sound. The biennial flowers, mullien pink, foxglove and Canterbury bells, will not endure this severe freezing without protection.

Various shrubs, as some varieties of roses and the flowering almond, will live if the soil is well drained, while upon a moist soil with the same exposure they will be killed to the ground. The cause is not the same as in the case of winter grain, and the herbaceous plants just mentioned, for these meet the winter at all periods of their growth, and continue to grow whenever the ground thaws. But it is necessary that the shrubs should fairly mature their wood, and thus prepare for winter. A well drained soil enables them to do this most perfectly, and thus prepared, shelter from piercing wind being added, they will endure almost and degree of cold ever experienced in our climate.

The flower buds of some fruit trees as the peach, are killed by extreme cold, though the wood, if well ripened, may survive. Last winter, with us, at a temperatureof eighteen degrees below zero, they were all killed, except those of some blood peaches. The young wood suffered somewhat, but they still ripened a fair crop of fruit, while other varieties of peach as well as apricots, did not produce a single blossom. At fourteen degrees below zero, a previous winter, the flower buds on a nectariane were all killed except on one limb, which being covered with snow, bore fruit, while the peach generally produced a fair crop.

The different kinds of grass and other plants which clothe our fields, are all more or less affected by the same causes. Those that are of the least value or positively injurious often endure the winter best, and take possession of the space vacated by better plants. Once noticing the extreme prevalence of a species of golden rod in the pastures of a good farmer, and throughout the neighborhood where the soil was similar, we asked the cause of its abundance. He replied, "The winter brought it in." Now if the winter had any effect to increase this plant, it could only have been by destroying the grasses which otherwise would have occupied the soil to its exclusion.

The covering of grain with straw has been recommended as a preventive of winter-killing, but this practice can never become general. Early sowing, by enabling it to get a good start and cover the ground, and thus shield its own roots from the repeated freezings and thawings is desirable. If it follows oats, their growth may serve as well as a coat of straw to shield it, and in the spring they will be out of the way, though if too abundant, they may choke the fall growth of the crop.

The preservation and cultivation of the belts of timber may do much to break driving winds, that sweep of the snow and expose the fields, but this is a slow operation, and it only by a general dissemination of a spirit to this effect, that any extensive good can be accomplished. It is true that a screen of evergreens will shield an orchard or garden, or protect a dwelling from the winds; but to break up the force of our storms through the country, the gorges through which the wind now draws must again be filled with forests and the hill tops stand bristling with their native guards. We have recently noticed the effects of clearing the forest from a single acre. The winds were allowed free sweep, and the halfway was blockaded with snow drifts, more than half a mile distant, where the snow was never known to accumulate before.

The fierce zero blasts of last winter embrowned the foliage of those hardy evergreens, the laurel and the hemlock, while in sheltered situations they were unaffected, allowing the importance of protection even to them.

But the most efficient assistance we can render our grass or grain in enduring the severity of our winters, consists in thorough draining. Though it is true that grain and clover sometimes winter-kill upon warm, dry land, the cases are camparatively rare.

But grains die in the winter from some other causes, than those we have mentioned. When the snow falls before the ground is frozen, and is blown into deep drifts, so that the frost cannot penetrate, we find as it melts off in the spring, spots of varying size. that turn brown and die, and are said to be "smothered." Early sown grain is more often thus affected and as a preventive it is recommended to allow calves to feed it off just as the ground freezes. We have never seen this effect, except when the snow was very deep, and then in the parts of the field where the soil was the richest, and the grain the largest.

When the snow is trod down by the passage of men or teams and a thaw and frost succeed, the paths are often marked next spring by the deadness of the vegetation. Ice formed from water flowing over or standing upon a field sometimes kills the grass beneath it, and at others no injurious effect is visible. Did the same effect alwas follow the same apparent cause, we might be better able to determine the reason and provide a remedy. More careful observation continued through a series of years will alone accomplish this object, for each one has noticed some facts bearing upon these points; and we propose the following interesting questions, and many more of a similar character will suggest themselves.

When the grain or grass have been killed during the winter, what were the circumstances of soil, exposure, &c., attending it? What the kinds of grain and grass? The time of sowing and state of forwardness? What vegetation, if any, survived?

CRAB APPLE AND PLUM FOR HEDGES.

In the April number of the *Farmer*, is an article from our esteemed correspondent, S. K. Ward, upon *Crab Apple Hedges*. We like the suggestion very much; but would, with our friend's permission, make an additional suggestion, which can do no harm, if it does no good. We would recommend planting the crab apple tree and the common wild plum together, for a hedge. We have no doubt but they would make the cheapest and best fence that could be made on our prairies. We would not, however plant both in the same drill. They may, and, ought, as we think, to be placed about one foot apart. We would suggest the plan of breaking a furrow across your prairie, where you want your fence, then drop the crab apple along the edge of the furrow upon them, then drop the plum stones in the same manner, and turn a furrow over them, and your hedge is planted. Either kind of seed we have mentioned will come through the sod. You need take no trouble in watching it, only to keep the fires out. The cattle will not browse it. Although the growth is slow, it is sure; and when once grown a few feet in height, it would puzzle Satan himself to get through it. Unless his skin is tougher than that of most other *domestic animals* But, farmers will recollect, that this kind of hedge would not only answer for a fence, but it would be a source of revenue, Every year one part or the other of it would bear fruit, not such fruit as would be highly prized in an extensive fruit-growing region; but such as will answer an excellent purpose in a new country. The apples and the plums make good preserves; but they require a good share of sugar. We expect, however, to obtain that article cheaper hereafter, if the Chinese sugar cane succeeds in this climate, as we have no doubt it will. The plums also make excellent jelly. Then, only think of the novelty of *picking fruit from your fences!* They can do no better than that in the East. And, just consider what a fine protection you will have for your cattle in cold weather! And, in the spring, how fragrant would be your fields and meadows with the odor of your fruit blossoms!—And, what is a consideration of vast importance, both the apple and plum are perfectly hardy, and will endure any degree of cold. Such a hedge would add twenty-five per cent to the appearance of a farm, to say nothing of its utility. Then try it, farmers, either with or without the additional suggestion which we have made. Recollect, it will soon be time to gather the seed.—*N. W. Farmer*

WHEAT AND ITS PREPARATION FOR BREAD-MAKING.

Of all the bread stuffs, wheat is the most important, and is that to the preparation of which, the attention of millers is chiefly devoted. It is to the amount of gluten contained in it, and the large per centage (as compared with the other bread-stuffs) of flour obtained, that wheat owes its value as a bread maker. But it so happens that fashion has dictated that the whitest flour is the best, and that the best loaf is that which is purest in color. This, unfortunately, has an evil effect of a two-fold character—namely driving the baker to use sundry compounds, to obtain this fictitious appearance, which pure wheat-flour, be noted, does not possess; and the makers to get rid of that portion of the wheat which happens to be more nutritious than that which is retained; this riddance being effected at considerable cost, through the agency of expensive machinery, which to a certain extent enhances the cost of the flour. The result of ordinary grinding is two fold—flour and bran. The former is that which is retained; the latter that got rid of, given to the pigs, or used in some way or other, but not in conjunction with the flour. This bran, which forms a large per-centage of the wheat, is, according to Professor Johnston, (see "Chemistry of Common Life," vol. i. p. 99,) "somewhat more nutritive than either the grain as a whole, or the whiter part of the flour. * * * The whole meal by simply grinding the grain, is equally nutritious with the grain itself. By sifting out the bran, we render the meal less nutritious, weight for weight; and when we consider that the bran is rarely less, and is sometimes unavoidably more than one-fourth of the whole weight of the grain we must see that the total separation of the covering of the grain, causes much waste of wholesome human food." The same authority gives a series of illustrations showing the structure of a grain of rye, which in constituents very closely resembles that of wheat; from which it may be observed that the gluten of the husk, or that which forms the bran is found in the interior covering, the exterior covering containing little of this essential. By removing this outer covering, the grain will yield purer and whiter flour than when it is left. Hence the attempts which have been made to effect this, previous to the grinding, or the preparation of the corn or grain in such a way that the process in grinding detaches only the worthless and coloring, and leaves the nutritive part. It is to the description of a plan on the latter principle, that we propose to devote a few remarks. The plan alluded to forms the subject of a patent granted recently to Nicholas Auguste Eugene Millon, and Leopold Moulin, of Algiers, Africa, for "certain improvements in the treatment of corn and other grains, and more especially in all that concerns washing drying, grinding, curing, and preserving them." The remarks by M. Moulin, both in the specification of the above patent, and in a pamphlet published by him, are so pregnant with hints and suggestions on the above important subjects, that we trust no excuse is necessary for here offering a digest or resumé of them. It may also add to their interest when it is stated that the process is peculiarly applicable to the grinding of "hard wheat,"—a variety of wheat containing a large proportion of gluten or nitrogenous principle than soft, but which our millers have not been able to treat with the same degree of success which is obtained on the Continent, where, be it observed, the flour obtained from it is of a finer quality, and brings a higher price, than that obtained from soft wheat.

In the preparation of good sound flour, the cleaning of the wheat from all extraneous particles forms an important part of the process. On this point the patentee remarks—"The mechanical cleansing of wheat, if performed as it has been up to the present time, leaves much to be desired. The foreign matters which the atmosphere contains incrust the surface of the grain, and deposit destructive germs on it. In certain countries the corn, which is trodden upon the ground under the feet of horses or mules, gives a grain much less clean and pure; and if to these alterations in the grain all those which develop themselves during its preparation and its transport be added, sieves and ventilation will be greatly wanting. On the other hand, in consequence of the mechanical cleansing, the skin of the grain is not thoroughly detached in grinding and the large pellicles of bran which it produces carry away the visible parts of the nutritive matter of the grain. In In view of this, washing the grain has been recommended; this, however, is attended with dangerous results, if not properly managed, and the thorough-drying immediately carried out. But this drying of the grain is, even under the most favourable circumstances—with good and economical arrangements—a most expensive and tedious process. The rapid clearing of the moisture from the surface of the grain, for under no under no circumstances should it remain long enough in the water to allow it to penetrate the interior—is effected by the patentees by the use of the "hydro-extractor," or "centrifugal

machine." A short description of this machine, and its mode of operation, will be found in the article on "Grain Drying." but the geain is not thoroughly dried; it still remains to a certain extent damp. This, however, is no disadvantage, but, on the contrary, brings about a condition of the grain of the utmost value in the after-grinding processes.

In the treatment of *hard* wheats, it is necessary to damp or moisten the grain previous to grinding, the object being to soften the outer integuments, which in the grinding becomes detached; if this is not attended to, its adherence results in a large portion of the nutritive portion of the husk coming away with it. In the damping, the grain receives at its exit from the hopper a small jet of water, which raises its weight some one or two per cent. This wetting however, does not cleanse the grain from all extraneous matters, as is desirable; on the contrary, it rather tends to make them more adherent. Again, the damping is very irregular; and to enable the moisture to spread from the parts of the surface well wetted to those dry, or comparatively so, the grain is allowed to remain for a certain period in sacks until a uniformity of dampness is obtained. All this is, as will be obvious, very uncertain; and the result frequently is that the wet penetrates to the interior and makes damp flour. Where the dampness or moisture reaches to, or exceeds, 20 per cent., the grinding cannot be carried on. Now, by washing the grain in properly arranged apparatus, and immediately putting it into the "hydro-extractor," not only is it thoroughly freed from all extraneous and deteriorating particles, but the amount of necessary moisture required is regulated to a considerable degree of nicety. Nor is this all; the most important results remain to be described. "When the grain which has been in the cylinder (hydro-extractor) in the condition which we have defined is taken to the mill, its products present the following modification:—The water which has principally damped the external and woody pellicle of the skin, detaches it, and makes the ordinary bran; the grinding allows the small light transparent scales to escape, and of a lightness never attained hitherto; this is the entirely woody and cortical portion of the skin. The principal azotes so abundant in ordinary bran, exist here only in a very reduced proportion. It is the same with the aromatic and sappy matters. This bran retains no trace of farina; by a microscope even some nutritive grains can hardly be discovered. For the same reason that the results are so perfectly accomplished, the proportion of the superior products of the grinding is increased also; besides, the bran which acquires a greater elasticity does not break; the flour and the groats become free from impurities; the double result is obtained of having the products finer and more abundant." But another valuable result is obtained by the principle of "essorage," as it is termed by the inventors (from *essoureuse*, the French name of the centrifugal machine.) On washing the wheat till the water runs off clear it may be considered free from impurities; but on being subjected to the action of the hydro-extractor, "a thick and colored liquid is expressed, which on evaporation yields a considerable residue." This extraction of coloring matter shews that a purifying effect is due to the centrifugal force, detaching from the surface of the grain, matter which escapes the longest washing. Even the coloring matter which lodges under the epidermis of the integuments is carried off; how much more likely, then, are the obnoxious particles on the surface of the grain to be removed! This purification the inventor thinks of great importance in the preservation of grain; as he has observed that grain essoraged, even although damped with the water, has kept longer and better in bags and close vessels, than grain not subjected to the process. This is in itself a most important result. It is also applicable to the restoration of unsound grain. M. Millon mentions that barley refused by horses, has been eaten by them with avidity after a small cold washing and passing through the essoreus.

We have already shown that the bran, the product of grinding on the ordinary plan contains a large proportion of gluten. M. Million in a table in his pamphlet, gives some interesting details respecting the value of the bran, the result of essoraged and non-essoraged wheats. Thus, the large bran of hard wheat, watered, winnowed, and ground on the ordinary plan, gives a per-centage of 12·32 of gluten; the same essoraged, only 6·17.

The grinding must follow the essorage immediately, or it loses its peculiar properties, we have discovered in hot weather fifteen to twenty minutes will be sufficient for the skin to become again adherent; it must then be submitted to the action of the drying cylinder and the grinding.

In the application of the process to soft wheats M. Millon is inclined to believe from the sponginess of their inter-integuments, that their absorbing powers will be greater than hard, and that a preliminary drying will be necessary. When the wheat, whether hard, semi-hard, or soft, contains a large per-centage of water, drying will be necessary before the essorage can be effected. Again, where it contains insects, mouldiness, or

other deleterious matter, they should be got rid of by repeated washing, and the extra water reduced four or five per cent. by passing through a drying apparatus.

We do not consider it necessary to describe the washing apparatus, or the hydro-extractor used by the inventors: our subject has been to direct the attention of our readers interested in the matter, to a principle which we consider contains much that is valuable both as regards the *preparation* and the *preservation* of grain.—*Farmer's Magazine.*

THE WHEAT MIDGE—HOW TO RAISE WHEAT AND BARLEY WHERE IT PREVAILS.

Eds. Rural:—I have noticed in some of the late numbers of your paper inquiries from different individuals in the western part of this State, just now so severely afflicted with that scourge of the farmer, the Wheat Midge, how they may avoid or rid themselves of its devastating and ruinous warfare upon their prospects and hopes. Having had and still experiencing our full share of the evil in the vicinity, on its onward march westward,—and for some years before it reached the granary of the State,—you will perhaps permit me to speak from experience for the benefit and instruction of many farmers, who, the past and present seasons, have had and are having "hopes deferred and hearts sick" with the result of their year's labor on the farm. As your pages are amply filled I will be brief.

In this vicinity we still raise some wheat, and some very good crops of white wheat too; and have learned that in order successfully to compete with the midge, our land must be in *high condition, well manured, and sown early*—say the first week in September. The earliest varieties—the Mediterranean and Soule's—have alone withstood the ravages of the midge. Several other kinds which were raised here when the midge first appeared —such as the Hutchison, Garden and Flint varieties—have not been heard of since the first and second year of its prevalence, and are now among the things that were.

The Mediterranean wheat cannot be said to be a favorite among the farmers, but is raised rather as a neccessity, where they do not consider their land strong enough to bring good white wheat.—It is more exempt from the midge than any other kind, but does not give a large yield to the acre—so that it has become something of a proverb that a half crop of white or Soule's wheat is better than a full crop of Mediterranean.

In a receipt number of the *Rural* I noticed a complaint that the midge was taking somebodsy's barely also. They have done the same here, untill we have learned at least to *try* and dodge them by sowing either *early* or *late*, say the first of March or first of April, or not until after the first of May. Fair crops of barley are raised hear this year which, were sowed at or about both of these periods.

Such, Mr. Editor, has been the experience of myself and others in this vicinity since the appearance of the midge among us. Should you deem it worth publishing, and it should prove of benefit to any one, I shall feel amply compensated.

Yours, H. WILLARD.

Cayuga, N Y. Aug. 8, 1857.

REMARKS.—The views of our correspondent, founded as they are upon experience are valuable and suggestive. His suggestion as to good culture, manuring and early sowing —so that the plant may attain a strong, healthy growth in the fall—is undoubtedly correct, and worthy of adoption by all who would raise winter wheat in sections where the midge prevails. The plan has been successfully practised for years by some of the best farmers in Seneca, Cayuga, &c., and we advise our friends in other counties to give it a trial. The remark relative to varieties is also suggestive, and confirmatory of the testimony of good farmers in this section—some of whom aver that the Mediterranean yields so poorly that its culture is unprofitable. The hint as to the periods of sowing barley in order to escape the midge will attract attention, as the barley crop has become more important of late years, in many localities, than wheat.—ED. *Rural N. Yorker.*

VERY GALLANT.—Fontenelle, at the age of 97, after saying many able and gallant things to the young and beautiful Madame Helvitius, passed her once without perceiving her. "See," said she, stopping and addressing him, "how I ought to value your gallantries. You pass me without even looking at me." "Madame," said the old man, "If I had looked at you I could not have passed."

Flowers that beautify the earth with colour and delight the passer-by with their fragrance are everywhere; the poison berry and the deadly nightshade are found only in the noisome marshes and untrodden swamps.

ASTONISHING FEAT OF A HOUSE SPIDER.

It would seem that there is no living thing so obnoxious as not to find admirers. What creatures so repulsive as rats and spiders? Yet the *London Quarterly* finds some things beautiful and even loveable in the former, and Dr. Asa Fitch, in *Harpers Monthly* labors to show that the latter "delicate little objects" are worthy of esteem and admiration. He denies that their bites are fatal to any insect, and extols their agility, cunning, adroitness, sagacity and heroism, as worthy of all praise.

In support of these views he tells us the following curious story, concerning a heroic spider who captured a snake. The affair came off last summer, in the store of Charles Cook, in Havana, Chemung County, New York, and is attested by the Hon. A. B. Dickinson, of Corning; "who himself witnessed the phenomenon, as did more than a hundred others."

An ordinary looking spider of a dark color, its body not larger than that of a common house fly had taken up its residence it appears, on the under side of a shelf beneath the counter of Mr. Cook's store. What may we suppose was the consternation and surprise of this little animal on discovering a snake about a foot long, selecting for its abode the floor underneath, only two or three spans distant from its nest.

It was a common silk snake, which, perhaps, had been brought into the store unseen, in a quantity of sawdust, with which the floor had been recently "carpeted." The spider was well aware no doubt, that it would inevitably fall a prey to this horrid monster, the first time it would incautiously venture within its reach. We should expect that to avoid such a frightful doom, it would forsake its present abode, and seek a more secure retreat elsewhere, But it is not improbable that a brood of its eggs or its young was secreted near the spot, which the parent foresaw would fall a prey to this monster if they were abandoned by their natural guardian and protector. We can conceive of no other motive which should have induced the spider so pertinaciously to remain and defend that particular spot, at the imminent risk of her own life, when she could so easily have escaped and established herself in some secure corner elsewhere.

But how, we may well ask, was it possible for such a weak, tender little creature, to combat such a powerful mail clad giant? What power had she to do anything that would subject the monster to even the slightest inconvenience or molestation? Her ordinary resort, that of fettering and binding her victim by throwing her threads of cobweb around it, it is plain, would be of no more avail here than the cords upon the limbs of the unshorn Samson. Aware that her accustomed mode of the attack was useless, how did she acquire the knowledge and sagacity requisite for devising another—adapted so exactly to the case in hand— one depending upon the structure and habits of the serpent to aid in rendering it successful?

How was she able to perceive that it was in her power to wind a loop of her threads around the creatures throat—a loop of sufficient strength to hold him securely, notwithstanding his struggles and writhings, until, by her tackle-like-power, she could gradually hoist him up from the floor, thus literally "hanging him by the neck until he was dead!" For this was the feat which this adroit little heroine actually performed—a feat beside which all the fabled exploits of Hercules in overpowering lions and serpents and dragons, sink into utter insignificance.

And who can say that in the planning and execution of this stupendous achievement, there was not forethought, reasoning, a careful weighing of all the difficulties and dangers and a clear perception in the mind of this little creature, that she possessed the ability to accomplish what she undertook; in short an exercise of faculties of a much higher order than the mere instinct which is commonly supposed to guide and govern these lower animals in their movements.

By what artifice the spider was able in the first of its attack to accomplish what it did we can only conjecture, as its work was not discovered until the most difficult and daring part of its feat had been performed. When first seen, it had placed a loop around the head of the serpent, from the top of which a single thread was carried upward, and attached to the under side of the shelf, whereby the head of the serpent was drawn up about two inches from the floor. The snake was moving around and around incessantly in a circle as large as its tether would allow—wholly unable to get its head down to the floor, or to withdraw it from the noose; while the little heroic spider, exulting no doubt in the success of its exploit, which was now sure beyond peradventure, was ever and anon passing down to the loop and up to the shelf, adding thereby an additional strand

to the thread, each of which new strands being tightly drawn, elevated the head of the snake gradually more and more.

But the most curious and skilful part of the performance is yet to be told. When it was in the act of running down the thread to the loop, the reader will perceive it was possible for the snake, by turning his head veritically upwards to snap at and seize the spider in his mouth. This had, no doubt, been repeatedly attempted in the earlier part of the conflict, but, instead of catching the spider, his snakeship had only caught himself in an additional trap. The spider, probably by watching each opportunity when the mouth of the snake had been turned towards her, adroitly with her hind legs, as when throwing a thread around a fly, had thrown one thread after another over the mouth of the snake, so that he was now perfectly muzzled, by a series of threads placed over it vertically, and these were held from being pushed asunder by another series of threads placed horizontally, as my informant states he particularly observed. No muzzle or wicker work for the mouths of animals could be woven with more artistic regularity and perfection; and the snake occasionally making a desperate attempt to open his mouth, would merely put these threads upon a stretch.

The snake continued his girations, his gait becoming more slow, however, from weakness and fatigue; and the spider continued to move down and up to the cord, gradually shortening it, until at last, when drawn up so far that only two or three inches of his tail touched the floor, the snake expired, about six days after he was first discovered.

A more heroic feat than that which this little spider performed, is probably no where upon record—a snake a foot in length hung by a common house spider! Truly the race is not to the swift, nor the battle to the strong. And this phenomenon may serve to indicate to us that the intelligence with which the Creator has endowed the humblest, feeblest of his creatures, is ample for enabling them to triumph in any emergency in which he places them if they but exercise the faculties he has given them. It is only the slothful, cowardly, timorous, that fail, and they fail not so much before their enemies as before their own supineness.

The Benefits of Machinery.—The *British Workman*, a periodical devoted to literature as connected with mechanical pursuits, contains in its number for the present month a very able article on the improvements in the "pottery art," in which it very graphically sets forth the benefits conferred upon workmen by improved machinery. It says:—

"Time works many changes both in men and things, and the last thirty years have shewn not a few instances which at the time were regarded by the working classes as *injurious*, have, in the course of time, been found to be 'blessings in disguise.' Within the recollection of many persons, horses and even hand power were in use at the Lambeth potteries for crushing the clay; and the potters all used wheels, called 'kickers,' which were turned by the foot. When Mr. Green determined to introduce the new wheel into his manufactory, *the whole of the workmen struck*. All the men left, except one man, who was allowed to continue at his kicker until his death, a period of fifteen years. He earned 30s. a-week, while the man with the improved lathe, who sat next to him, earned double that sum. So much quicker could the man work at the new wheel than the potter at the kicker, that he could make as many stoneware ink bottles for 6d., as the other could throw off by his machine for 1s. 3d. Since the day of the kicker the number of men and boys employed at Mr. Green's pottery alone has increased five-fold. What strikes and riots were witnessed in Lancashire and Yorkshire in bygone years on the introduction of power looms and other machinery. Short-sighted policy said—'these will injure the working classes and reduce the number of hands employed.' The result, however, has been very different from what the desponding and faint-hearted dreamed of. Those very inventions which were regarded with such bitter hostility, have, in the providence of God, been the means of extending the commerce of our nation to an extent previously unknown. The old kickers could not possibly have supplied the present demand for pottery, neither could the old hand-looms have produced one-half the cloth now required for the clothing of the people. Men and women are now employed by tens of thousands in the weaving mills throughout the manufacturing districts, and they can produce far more work and earn better wages than under the old system. What was thought to be a national evil, has proved a national good.

The whole number of newspapers published in the United States is 3,634; some 941 of which are in the State of New York.

WOLF TEETH IN HORSES.

A correspondent of the *Country Gentlemen*, says, in reference to wolf teeth in horses:

Why such teeth affect the eyes I know not; neither did I see any one who pretended to give any reason, though I have asked the most experienced and skilful dental surgeons. But that two small, sharp teeth, called in common parlance wolf teeth, frequently grow one on each side of the upper jaw of the horse, just in front of the molars, is a fact known to all conversant with young horses; and that such teeth do injure the eyes I have no question. My father raised some blood horses, and I can remember when quite a boy, seeing them knocking out these teeth from the colts. Although the eyes recovered soon after the teeth were out, I could see no reason for it and thought it an absurd custom. When old enough to take a more practical interest, I thought it must be the bleeding occasioned by extracting the teeth that was beneficial; but I soon found by practical experience, that bleeding would not cure the eyes while these teeth remained in. I have known, I should think, as many as thirty cases. I never knew them come in colts younger than two or more than six years old. Horses more frequently, though mares sometimes have them. I have noticed one eye of my young horses becoming sore, and found quite a large tooth on that side of the mouth, while the tooth on the other side would be but just making his appearance, and the eye on that side quite clear. I have known some cases where but one tooth ever came, but in most instances where one appears, the other will come shortly. I have had three cases among my own horses last spring, all of which recovered soon after the teeth were out. And I do not now recollect an instance where the teeth were extracted soon after the eyes became sore, that they did not recover. They are best extracted with forceps.

DIOSCOREA BATATAS.

Révue Horticole, Paris *June*, 1857.

Exhibition at Versailles.—Fine specimens of the Dioscorea Batatas were exhibited by *Mons. Rémont*, of Versailles, whose practical zeal in cultivating has been rewarded by receiving from the hand of the Empress, the Grand Prize of Honor (being her gift).

Bulletin De La Sociélè Imperiale Zoolozique D'Acclimatation, June, 1857

Mons. Chevet, Chairman of the Committee on the subject, Reports that the cultivation of the Dioscorea Batatas in our market gardens is *sure*, both on account of its abundant crop, and its excellent quality. Its culture is easy; it requires but little care; its hardihood proved; it keeps perfectly in the earth; no cold hurts it, it is very readily multiplied by the seed or by the little balls—"Bulbilles"—and by cuttings, &c. It should be planted in rows from forty to fifty centimetres apart—(about from sixteen to twenty inches.) I have demonstrated the excellence of this tuber for our tables—for plain dishes, and for luxurious dishes. It cooks in *half the time required by the potato*, in the pot, in the oven, or under hot ashes.—*The poor will profit more by it than the rich!* I come to the society to ask for votes of thanks to our Consul, Mons. Montigny, who sent it to us from china—and to the members of this society who have carefully cultivated this precious plant in their respective departments.

How to Extinguish a Fire in a Chimney.—So many serious fires have been caused by chimneys catching fire, and not been quickly extinguished, that the following method of doing this should be made as generally known as possible: Throw some powdered brimstone on the fire in the grate, or ignite some on the hob, and then put a board or something in the front of the fireplace, to prevent the fumes descending into the room. The vapor of the brimstone ascending the chimney, will then effectually extinguish the soot on fire.

Tansey for Peach Trees.—A few years ago I experimented with planting a root of tansey with some young peach trees, as a preventive of the worm at the root, which I thought had a good effect. Nearly all the trees were blown up by the roots during the storm we had four years ago, but one or two were left, which continuing flourishing, The tansey grows round the tree, and seems to act as a mulching.—*Cor. Ohio Cultivator.*

RAISING NEW FRUITS FROM SEED.

The raising of new varieties of fruits from seed is a very interesting department of horticulture. Indeed we know of nothing more pleasing. To save the seed of some promising variety, plant, cultivate, and watch and wait for the realisation of our hopes, is a work of the most pleasurable excitement. Failure succeeds failure—not one variety in a hundred proves superior, yet the undaunted cultivator pursues his experiments, until success rewards his zealous labors. Most of our finest fruits are of recent origin, and many of them natives of our country. Prof. Kirtland's cherries, Dr. Brinckle's raspberries, and the strawberries of Hoxey and others, and several of our best pears, do our country honor throughout the civilized world. On examing an English nursery catalogue recently, we noticed that nearly all the fruits advertised as new varieties, were American seedlings. To all who are engaged in this work we say perserve,

"Give new endeavors to the mystic art,
Try every scheme and riper views impart;
Who knows what meed thy labors may await?
What glorious fruits thy conquests may create?"

"These peaceful triumphs," Mr. Wilder truthfully remarks," are worthy of the highest ambition, conquests which leave no wound on the heart of memory, no stain on the wing of time.—He who only adds one really valuable variety to our list of fruits in a public benefactor. I had rather be the man who planted that umbrageous tree, from whose bending branches future generations shall pluck the luscious fruit, when I am sleeping beneath the clods of the valley, than he who has conquered armies. I would prefer the honor of introducing the Baldwin apple, the Seckel pear, Hovey's Seedling strawberry, aye, or the Black Tartarian cherry from the Crimea, to the proudest victory which has been won upon that blood-stained soil."

We have noticed this season several very promising seedling currants, that bid fair to excel the best English sorts, which we hope to make a good report of next summer.

We have just received from the New Lebanon Society of Shakers, a box of Gooseberries, of a dark purplish color, good flavor, and rather less than medium size, though larger than Houghton's seeding. It must be very productive, as the branches were loaded with fruit, and as it is a native and not subject to mildew, is a desirable acquisition. Accompanying the fruit, was the following note:—"I send you a small box of gooseberries, the *Mountain Seedling*, not so much for their size, as for their superior flavor and productiveness. The bush grows from six to seven feet high, and loaded all the way up, as you see the branches I send you, are with fruit. It is perfectly hardy and free from blight. It was discovered growing wild some ten years since, and has been proved side by side with other varieties, both foreign and domestic, and we have found that while other varieties mildew and cast their fruit, the Mountain Seedling has improved year by year."

Much discussion has been had on the best method of producing improved varieties of fruit from seed, and the most eminent Pomologists disagree on this subject. Our advice, however, is to plant the best seeds of the finest varieties, take good care of the plants, and trust to Providence for the result.

We caution all persons against purchasing any new varieties of fruit sent out with flourish of trumpets, at high prices, as by doing so, they will most assuredly get cheated. Whenever a new claimant for the public favor appears, its merits should be canvassed thoroughly and carefully by disinterested and competent persons, and whenever practicable, it should be presented to some Horticultural Society, and if deemed of sufficient importance, a committee should be appointed to examine the fruit, the habit, growth and productiveness of the plant or tree, the nature of the soil, manner of cultivation, and such other things as they may deem important. This committee should publish their report for the benefit of the public. If after full investigation, they should deem it an important acquisition, planters would buy with confidence; if they considered it unworthy of general cultivation, it would prevent the reading public from being cheated. If they should think another trial neccessary, it would be for the true interest of both buyer and seller to have this trial made before the plant or tree was offered for sale. We protest most decidely against the patent medicine system of puffing a new fruit or flower.—*Rural New Yorker.*

To Keep Flowers.—To preserve flowers in water, mix a little carbonate of soda in it and it will keep them a fortnight.

CAKE RECIPES

Sponge Cake.—One and one-third cup sugar, 1 $\frac{1}{3}$ cup flour $\frac{1}{2}$ cup sweet cream, and 3 eggs—whites and yokes beaten separately—1 teaspoonful cream of tartar, $\frac{1}{2}$ teaspoonful lemon extract. Bake quick.

Hickory Nut or Jackson Cake.—Two cups white sugar, 1 cup butter, $\frac{1}{2}$ cup milk, 1 cup chopped hickory nuts, 1 cup raisins, 2 cups sifted flour, 4 eggs—the whites and yolks beaten separately—$\frac{1}{2}$ teaspoonful soda, 1 teaspoonful lemon.—The whole to be well beaten and baked in a quick oven, in square tins. Is much nicer to be frosted and cut in squares for the table.

Delicate Cake.—Two cups sugar, 1 cup butter, 1$\frac{1}{2}$ cups flour, whites of 8 eggs, 1 spoonful lemon extract; using the yolks with the same measure of ingredients make a *Gold* Cake. Using the two in thin alternate layers spread with jelly, makes an excellent cake for tea or evening parties.

Cure for Warts.—*Inquiry.*—Can you or any of your subscribers give an effectual remedy for Warts?—E. C. H.

Remarks.—A paste made of the ashes of Willow bark and vinegar, and put on the warts once or twice a day for a week, or so, will cure them. A very little nitric acid put on a wart once a day, for a few days, is a sure cure in every case, without soreness or pain, unless the acid is used too freely. Whittle out a stick about as large as a knitting needle, dip this into the acid, and just touch the top of the wart with it. It is better to get on too little than too much. The cure is certain, but the danger is in getting on so much as to cause pain.

KEEP FRUIT TREES STRAIGHT.

Trees in an open exposure often acquire a leaning position from the prevailing winds. This should not be suffered beyond a certain stage of the tree. When as large as one's wrist, they should be set up erect, and, indeed, thrown into the wind at an angle of ten or fifteen degrees; in order to bring them ultimately into a straight position. This is best done by obtaining crotched limbs from the woods, eight to twelve feet long. and placing the butt end, which should be sharpened, in the ground, and the crotch end either against the trunk, immediately beneath the branching point, or against a large outer limb, if more convenient, securing it from chaffing in the crotch by a padding of straw or litter, and setting the tree at once up to the desired angle or elevation. Loosen also the ground on the windward side of the root so that it will not bind, and the work is accomplished. Let this be done when the tree begins to make its summer growth, or soon after leaving out.

One season, if the tree is thrifty, will be all that is required. If, however, it be obstinate, repeat the trial another year. The remedy is sure. Even large trees, which have acquired a permanent lean, may be thrown into an erect posture, by loosening the earth, at the root, and occasionally cutting off an obstinate large root, without injury to its growth, and thus be made sightly. An erect tree will be longer lived, and more fruitful than a leaning one, and not half so subject to casualty as if left to its own guidance.

Value of Clover Hay.—H. Capron of Illionis, who has been largely concerned in the dairy business, (having sold \$6,000 worth of milk in a single year,) informs us that he made accurate experiments to test the comparative value of timothy and clover hay. These experiments extended through a period of two years, were accompanied with accurate weighing and measuring, and the food was changed from timothy to clover, and vice versa, once a month, and results were that the clover hay uniformly yielded ten per cent. more milk than the timothy. It will be observed that this was not a single experiment, but a *series* of experiments extending for a long period. It is also proper to state that the clover was well cured.

A Wash for Trees.—Heat one pound of sal soda to redness in an iron pot, and dissolve it in a gallon of water. This wash will take off all the moss and dead bark, and kill all insects on all fruit trees or grape vines, and make them as smooth as though polished, and make old trees bear anew.—*Exchange.*

Manufacturing Steel by Electricty.—The *London Mining Journal* describes the new and interesting process of converting iron into steel by a current of electricity, passed through the iron when placed in a furnace, and imbedded in charcoal, whereby an immense saving of labor, time and fuel, is the immediate result. By this method it is found that iron can be made, even from ores, equal in purity to the finest of iron at present imported. It also secures a greater power of governance to the operators, inasmuch as the application of the battery for a certain time will insure a certain amount of carbon being taken, absorbed or concentrated, amalgamated with the iron, and thereby increasing or diminishing the action of the battery, different qualities of steel will be produced with a certainty, regularity and efficacy which hitherto, under the ordinary process of manufacture, has been the object wanting—the great desideratum sought after, as well as the end desired to be attained. The Journal thinks that if, on a more extended scale, the electric process should be found practicable, we may yet have cast iron mortars, guns and ordinance at once carbonized into steel, and lowered in rigidity, toughness and ductility, as well as in the tensible properties, to any degree or amount of temper.

Mechanical Genius.—The Paris *Patrie* contains the following:—"A youth, aged eighteen, belonging to a respectable family of Paris, had, about a year ago, been condemned for theft to five year's imprisonment. His conduct in prison being quite exemplary, he gained the good opinion of the Director, who soon remarked in him a peculiar aptness for mechanical contrivances. A few days ago he begged the Director to tell him what o'clock it was, that he might set his watch. 'You have a watch, then?' asked the Director. 'Only since yesterday, sir,' said the prisoner; and to the astonishment of the Director, produced one made of straw! The little masterpiece is two and a half inches in diameter, about half an inch thick, and will go for three hours without winding up. The dial-plate is of paper, and a pretty straw chain is attached to the whole. The instruments the prisoner had at his command were two needles, a pin, a little straw, and thread. Several persons of distinction, moved by the surprising genius for mechanics, are now endeavouring to obtain his liberation."

EDITOR'S TABLE.

Notice to Canvassers.—Those persons who consider themselves entitled to prizes for obtaining subscribers for the present volume, will please send in their applications, stating number of subscriptions sent, and how the books, and other prizes (as the case may be) are to be disposed of. By reference to the advertisement in the January, and two or three subsequent numbers, canvassers will see whether they are entitled to a prize, and what kind.

Wade's Sale of Short Horns.—This great sale came off with much success pursuant to advertisement. The prices ranged from $100. to $400 for thorough-breds, and in proportion for grades. Sheep sold at fair prices also, notwithstanding the hard times. The attendance was good, and of the right sort of people. We are glad to state that nearly all the herd remains in Canada. We have not space for a further notice this month, but may find room for details in our next issue.

We request the attention of our readers to the advertisement on another page, in reference to agricultural instruction in University College. No young man of ordinary attainments and perseverance but might spend four or five months during the winter season, with very great advantage, both as respects his general education, and his special improvement in a knowledge of the scientific principles and most approved practices of agriculture. Such students may enter without being subjected to any previous examination, and have the privilege of attending as many of the collegiate classes as they may think convenient or desirable, at an expense that is merely nominal. Surely there must be many among our farmers' sons, who only require to be made aware of these advantages, that they may avail themselves of them.

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THE EXHIBITION AT BRANTFORD.

The Twelfth Annual Exhibition of the Agricultural Association was held at Brantford on the 29th and 30th of September and 1st and 2nd of October. The weather was wet and cold during the greater part of the week. In several departments the Exhibition was in advance of its predecessors. There was abundant evidence that a steady progressive improvement in the leading branches of our domestic industry is being made from year to year. In agricultural implements and machinery, the exhibition of this year has far surpassed all previous exhibitions, both as to quantity and quality. The same may be said of sheep,—the Leicesters taking the lead of all other breeds. The two classes of thorough-bred cattle, Durhams and Devons, made an excellent show, but exhibited no marked superiority as to quality over former years. The show of stallions was good, and of matched horses the best we have ever seen, taken as a whole. In the department of cereals there was a falling-off, especially in wheat; but the unfavorable season will account for the inferiority in this department. Roots made a good display, but not equal to former shows. In manufactures generally there was little improvement, though in a few branches the display was excellent. Carriages made a poor show, none of the large manufacturers appearing as exhibitors.

The location of the Show at an inland town like Brantford, must necessarily exclude the heavy manufactures of the large cities. A carriage-maker, for instance, will not, for the sake of any advantage the Exhibition may offer, expose a valuable carriage to the risk of injury in being transhipped three or four times by careless railway servants, on its way to and from the fair. Even where, from the nature of the article, liability to damage may not be great, the expense of transporting and transhipping heavy machinery, &c., effectually prevents competition, except from the immediate neighborhood. The Provincial Shows ought not, in our opinion, to be taken off the main lines of communication. Exhibitors should not be required to remove their goods from one steamer or line of railway to another; once shipped, they should go straight to the fair ground. Of course a few who have the

misfortune to live at a distance from the great thoroughfares will be put to some inconvenience, but the many must not be sacrificed to the few.

We proceed briefly to notice the various departments of the Exhibition, only giving the names of those who obtained first prizes. The complete prize list will probably be published as an extra by the Board of Agriculture: we need not therefore occupy our pages with matter which our readers will soon have in another shape.

CATTLE.—As we have said, the Durhams and Devons preponderated. There was, however, a fair show of Ayrshires and Galloways. Some good grade Durhams were exhibited. Messrs. Lawrie and Kirkwood, of Hamilton, exhibited their famous steers, which were the observed of all observers. They took the first prize in the class of fat cattle. J. P. Wheeler, Esq., of Scarboro, took the first prize for aged Durham bull. Mr. Arthur Hogg, of Guelph, obtained the first prize in the class of four years; Hon. Adam Ferguson in that of three years; John Robson, of London, in two years; R. R. Brown, Stratford, one year; and R. Armstrong, of Markham, for best Durham bull calf, under one year. Mr. Stone of Guelph, Mr. Miller of Pickering, and Mr. W. Douglas of Onandaga, also obtained prizes in this class. The young stock in the Durham class was very highly spoken of by breeders generally.

Devons.—The Devons always make a striking feature, when exhibited in sufficient number to attract notice. Their uniformity of color and symmetry of shape render a collection of Devons more attractive to the eye than the same number of any other breed. The present show was much larger than the last. Mr. John Masson, of Nissouri, carried off the first prize in the class of aged bulls; Mr. Richard Coates, of Oakville, in that of four years old; Mr. John Moore, of Etobicoke, in that of three years old; Mr. W. Scott, of Wilmot, in two years; Mr. Daniel Tye, of Wilmot, in one year; and Mr. W. H. Lock, Yarmouth, in class of bull calves under one year. Mr. Lock took the principal prizes for cows and heifers, though he lost the first in two classes—aged cow and two year old heifer—which were won by Mr. C. Courtier, Darlington. Mr. Ferrie of Doon, Mr. Tye and others, also contested the field with Mr. Lock, with occasional success.

Herefords.—As usual, this class showed small; in fact there was no competition. Mr. McMicking, of Stamford, was the only exhibitor; and unless a change should take place next year, we would recommend the class to be omitted. It is absurd to waste the funds of the Association year after year upon inferior animals, merely because there is no competition against them.

Ayrshires.—The show of Ayrshires was hardly as good as last year. The first prize for four year old bull went to Lower Canada. The best two year old was exhibited by Dr. Richmond, of Gananoque. Mr. Stanton, of St. George, and Mr. R. L. Denison, carried off most of the prizes.

Galloways.—This comparatively new class of cattle attracted much notice, especially from American visitors. Their black, woolly coats and hornless heads arrested the attention of passers-by, who generally asked, "What do you call these?" The chief exhibitors were W. Roddick of Port Hope, W. R. Graham and John Fleming of Vaughan.

Grade Cattle.—Mr. S. Hodgskin, of Guelph; Joseph Pierson, Whitby; E. Jones, Stamford; and John Snell, Chinguacousy, were the principal exhibitors.

HORSES.—In thorough-breds the show was thin. The first prize was awarded to "Oxonian," an imported horse, owned by James Armstrong of Yarmouth. Francis Major, of Markham, took the second for "Hermit," and Dew & Nightingale the third for "Sir Tatton Sykes." The blood-horse is going out of fashion in this country, as a distinct breed, and we cannot say we regret it. A few first-class stallions should be kept, to give fineness of bone and "mettle" to the duller races; but unless better specimens than those exhibited at Brantford are imported, the Roadster and the Morgan—now making their appearance in Canada—will drive them off the field. The prize thorough-breds were merely good, the others inferior. S. &. T. Wilson, Guelph, took the first prize for agricultural horses over sixteen hands. Jos. Black, same place, took the first prize in the same class, but between fifteen and sixteen hands. D. Roundtree, Weston, took the first prize for heavy draught horse. S. Macbeth, Dunwich, took the first prize for roadster. Mr. M. Zimmerman was the winner in the class of carriage horses. The competition was great in this class. George Black, Nissouri, exhibited the best span of heavy draught horses. The best single carriage horse was shown by Patterson & Bros., Richmond Hill.

SHEEP—*Leicesters.* The Messrs. Miller of Pickering and Markham, and Mr. Snell of Chinguacousy, were the most successful in this class. The competition was close.—*Cotswold.* Mr. Stone of Guelph, J. Petty of Kippen, and Mr. Snell, took most of the prizes.—*Cheviots.* Mr. J. Dickson of Clark, and W. Roddick, were the chief competitors, and divided the honors. In long-woolled sheep, not pure-bred, Mr. Miller of Markham took the first prize for ram two years and upwards.—*South Downs.* Mr. Stone and Mr. Spencer of Whitby divided the prizes in this class. The competition was not so large as on some former occasions. This breed is not so popular as the long-woolled Leicester.—*Merinoes.* The fine-woolled breeds make slow progress also: they seem to remain in first hands. Mr. Choate of Hope, and Mr. Rymal of Barton, are, as usual, the chief exhibitors.

PIGS, POULTRY, &c.—There was nothing remarkable in the show of pigs. C. A. Jordison of Hope, Richard Coate, Oakville, J. Card, Guelph, James Durand, Kingston, and Mr. Jordan of Paris, were the exhibitors in this department. The poultry was good in quality, but not extensive in quantity. Mr. Lamb and Mr. Peters, of London, took the lead in poultry.

GRAIN.—We can say but little of this department, as we barely glanced at it. From the statements of others we conclude that the show was inferior to former years. The Canada Company's prize of $100 was carried off by Mr. John Brown, of the township of Burford. The Association's prize of $40 was awarded to Mr. Freeman, of Wyndham. The third best twenty-five bushels of fall wheat also came from Burford; it was grown by Mr. Isaac Merritt. This township has become famous for producing good samples of fall wheat. Last year the Company's prize was awarded to Mr. R. Smith, of the same township. We did not learn whether the prize wheat this year was *Blue-stem* or *Soules.* The first prize for best two bushels

was awarded to J. H. Anderson, of Flamborough West. Mr. C. Anderson, of Haldimand, exhibited the best two bushels of spring wheat. The show of peas, oats and barley was good, but not better than usual.

Roots, &c., were large and healthy, notwithstanding the wet season. The show was not so good as we have seen, but was nevertheless very creditable.

Horticulture.—The productions in this department were not so numerous as we have seen them, but the quality was generally excellent. The coldness and lateness of the season rendered it impossible to make much display in those productions of the garden of high tropical origin. We tasted some of the melons, squashes, &c., but found them insipid; they were not ripe. Hon. John Young, Montreal; William Smith, Brantford; John Gray, Toronto; Judge Campbell, Niagara, and a few other local exhibitors, divided the prizes in vegetables. The same gentlemen were also competitors in fruits. The peaches and grapes made a tempting display. Mr. Woodruff of Niagara; Judge Campbell, same place; Charles Arnold, Paris; James Fleming, Toronto; John Freed, Barton; and Mr. C. C. Benedict, Falls; displayed extensively in these fruits. Mr. Arnold's grapes we can commend, for we had practical evidence of their juicy richness and agreeable flavour.

Dairy.—The best butter was made by Mr. James Wilson, North Dumfries, and the best cheese by Mr. Hiram Ranney of Dereham. One of the cheeses of Mr. Ranney was as large as a cart-wheel, and proportionately thick. He is the prince of cheese-makers in Canada. The exhibition in the products of the dairy was not equal to some former shows.

Agricultural Implements.—The implements and machines exhibited at Brantford, show a decided advance. The number of ploughs exceeded that of any former show. The harvest machines were also superior in number and quality to those of any previous year. In pursuance of the recommendations of this and other journals, an attempt was made to submit these important machines to the test of trial. The proper season for such a trial had been allowed to pass, and the only crop available was a field of oats, badly laid, at the farm of Mr. A. Good, about two miles from the fair ground. The labour of testing the reapers and mowers, *ten or twelve* in number, and also about *thirty* ploughs, fell upon the shoulders of five gentlemen, who, in addition, had to examine and make awards upon all the other agricultural machinery! This was expected to be accomplished in two and a half days! Either of these divisions—the reapers and mowers, the ploughs and cultivators, or the threshing machines, straw-cutters and other machines—would have imposed ample labour upon any one committee. The result was, a hasty trial, a hurried examination, and in some cases probably unsatisfactory awards.

The *Ploughs* were ordered to the field on Wednesday morning. Each exhibitor was required to begin and finish a short "land;" but as it was found that too much time would be consumed by this requirement, they were told to complete about a dozen furrows. The ploughs were each placed upon the work they had performed. The judges then examined the work, noting its quality and the number of the plough. The dynamometor was then attached to each plough in succession. They were all

held by one ploughman, selected by consent of the exhibitors, and drawn by the same team. Each plough turned one furrow with the instrument attached. The width and depth of the furrow slice was made the same in each case, as nearly as possible, and the amount of traction was noted at six points. The average result was arrived at by adding the figures together, and dividing by the number of observations. The draught, with two or three exceptions, was remarkably uniform. The medium was 4 cwt., with a furrow seven inches deep by eleven wide. It may be well to observe that the soil was a clay loam, and very favorable for the purpose. Some six or eight of the wooden ploughs were so nearly alike in *draught* and *work*, that the judges were obliged to give more attention to mechanical contrivance than was perhaps desirable, in order to select the three best. The wooden plough to which the first prize was awarded, was made by Mr. P. Logan, of Paris. The mode of attaching the coulter, and the structure of the implement generally, displayed admirable workmanship. Between the ploughs of Mr. Morley and Mr. Modeland, it was very difficult to decide. The former was a little lighter in draught, and a majority gave it the preference. They are both good enough for any farmer who wants such an implement. A new plough, got up by Mr. Jacob Bingham, drew lighter in proportion to its furrow slice than any of its competitors. It also did very fair work. It was commended by the judges, and would probably have obtained a prize had there been a fourth to give. Its mechanical structure was not quite so durable as the prize ploughs. The judges also commended a plough exhibited by ——————

The iron ploughs were not so numerous as the wooden, but of very superior construction. The judges unanimously disapproved of those which cut the *crested* furrow. Those turning a *square* furrow obtained approval for doing the best work. The first prize was given to Mr. D. Duncan of Ancaster, the second to Wilson & Adams of Paris, and the third to A. McSherry.

Reapers and Mowers.—The unfavorable weather and other difficulties induced the Judges to abandon the attempt to test large reapers. The combined reapers and mowers and the single mowers were, however, taken to the field. The combined machines were tried in a field of oats. The ground was rough, and stones as large as a half-bushel were several times encountered. The oats laid in one direction, and the machines were required to cut *with* the incline as well as against it. The work was well done by all the machines. The gavels were better from some than from others, but this might have been owing to superior skill on the part of the raker. The direct and side draught were not tested, except by the eye, for want of a suitable instrument. The same machines were tried in a field of clover in competition with the single mowers. The latter were chiefly after Ketchum's pattern. The work here was also of nearly uniform excellence. The award, as in the case of ploughs, turned mainly upon the construction and durability of the respective machines. The first prize for Combined Mower and Reaper, was awarded to Darling & Atchison, of Thornhill. This machine is chiefly of iron, and is entirely without side draft, or weight upon the necks of the horses. Its mechanism was also excellent. The second prize was awarded to Messrs. Patterson, of Belleville, and the third to

Mr. Massey, of Newcastle. The two latter are after Manny's patent, with several important improvements.

The Reapers, as we have said, were not tried in the field. The competition was very close, as all, with two exceptions, were unquestionably good machines. A new machine was exhibited by Mr. Lefler, of Streetsville, displaying ingenuity and skill in workmanship, but the Judges objected to the mode in which a third wheel was attached, and considered it doubtful whether the machine would *turn* with facility in the field. Messrs. Patterson took the 1st prize for Reaper. Mr. Watson, of Ayr, the 2nd. Mr. G. W. Goodall, Brantford, the 3rd. The machine exhibited by Messrs. Johnson, of Toronto Township, and also that of Mr. Bell, St. George, were highly spoken of, but as there were only three prizes, they had to be passed over. The third prize machine was what is called Burral's patent with self-raker. The Judges differed as to this machine; some objecting to it altogether, and others regarding it more favourably, because they had used it. The Seymour and Morgan machine, which has been the model for most of our Canadian manufacturers, is taking the lead of all others, and seems as near perfection, when well made, as such machines can be. The Ayr machine has an ingenions contrivance for elevating the finger-bar from the drivers seat, while the machine is in motion. This may sometimes prove useful. Upon the whole the exhibition of agricultural machinery is most encouraging, and gives promise that *labor* will be *saved* ere long in every operation of the farm.

We must leave other deparments of the show for comment in a future number.

MEETING OF THE AGRICULTURAL ASSOCIATION.

A meeting of the several officers and members of the Association and others was held in the Town Hall. On the motion of Col. Thompson, the President took the Chair. He was supported on his right by D. R. Stevenson, Esq., M. P. P., and Col. Thompson; and on his left by Jas. Ferguson, Esq., and by David Christie, M. P. P. Among the gentlemen present were J. B. Marks, Esq., J. McBeth, M. P. P., Mr. Buckland, Ex-Sheriff Jarvis, George Campbell, Messrs Wade, Storm, and other eminent farmers. Mr. Ferguson was appointed Secretary. The President stated they would remember that it had been decided that Wednesday and Thursday evenings should be devoted to discussions among the farmers upon any interesting subject that might be brought before them. For that purpose they had now met together, and it was of great importance that these great social meetings should be well kept up. He did not intend to take any part in the discussion; but there was one point to which he would call their attention, and that was the Educational department in the floral hall. He then went on to speak in high terms of the Educational system of the country, and especially the public Libraries connected with them.—He concluded by stating that the subject chosen for discussion for the evening by the Local Committee was this:—" In what manner this Provincial Show may be carried on in the manner best calculated to advancee the Industrial and Agricultural interest of the country." Mr. McDougall had been selected by the Committee to give a paper upon this subject, and he now called upon him to come forward.

Mr. McDougall expressed his opinion that although the Provincial Shows had so far been highly successful, and would compare with any Exhibitions held on this continent, yet there were some points in which he thought they might be made more generally useful. One point in which he thought they were deficient was, that there was no proper provision made to record the results. He thought something might be done with regard to animals, by taking likenesses of the best of the several breeds. In this way they could form better ideas of the improvement that had been effected. No one could obtain the

knowledge of a single fact of importance except by attending these shows, and then only from observation. No one knew how this wheat, or any other production of the earth which obtained a prize, had been cultivated. No one could tell from what he saw how to improve his own culture. This defect he thought might be remedied by requiring every person who sent an article for exhibition, to furnish answers to a list of questions which should be sent to them. By publishing these, every one could know in what manner excellence in any particular branch could be obtained. Another point was that they have hitherto had no practical test of the quality of the Agricultural Implements. It was quite impossible to tell the value of any machine, merely from an inspection of it on the ground. This year they had commenced the system, and the result was that he believed they would give the 1st prize to a reaping machine, to which, had they not seen it working, they would probably have given no prize at all. Another thing was that the decisions of the Judges at a show like this ought to be so reliable that farmers could be guided by them in purchasing machines; and without a practical test they could never arrive at that result. The same remark applied to the ploughs, fanning mills, and other kinds of machinery. Another important point was the places at which these shows should be held, and his opinion was that they should be held more permanently. Giving the people of Brantford every credit for the preparations they had made, still many complaints were made of the want of accommodation, and the high prices charged for what was to be had, Another objection was that the members of the Local Committee, from inexperience, could not be expected to make all the preparations that were required. He thought that the best mode would be to select three permanent places, one central, one in the east, and another in the west. He did not think that it was necessary to confine the shows to one place, as there were many advantages from changing the location.

E. W. Thompson, Esq., spoke of the difficulties which had been experienced in first establishing these exhibitions, and the success that had attended them; this was especially the case in agricultural implements. A few years ago all our implements came from the States, but this year there was not a single foreign implement upon the ground. (Cheers.) It was impossible to test the value of implements at this season of the year, and the only plan would be to appoint a Committee in various parts of the country to report upon the implements used at the time they were employed. It was also necessary to have a better implement to test the draft of the ploughs.

Mr. French observed that he knew of no school in his part of the country which was sufficiently advanced to make use of the splendid instruments displayed in the Exhibition. He thought the establishment of an Agricultural and Veterinary College would be of more benefit to the country. A great many things that were now spoken of as new had really been known of years ago, and the advance that had really been made was very small.

Mr. Jarvis approved of many of the suggestions of Mr. McDougall, with regard to reaping machines. He thought that persons intending to exhibit such machines, should give notice of the time at which it could be tried. With regard to manures, he had recently seen in Europe what care was taken of all kinds of manure; and he was glad to learn that a gentleman in town, too, was preparing to manufacture manure from the numerous kinds of offal to be found about all large towns. The Board of Arts and Manufactures with which he was connected, would work hand in hand with the Agricultural Association, for the benefit of farmers as well as machanics.

Mr. Stevenson spoke of the advantages derived from the establishment of the Association, and of the improvements it had effected in the agriculture of the country. Farmers were very much averse to what they called book-farming, and were slow to adopt anything until they knew the practical result of it. The working of the Association had been quiet, but had produced a much greater effect than was generally imagined, in showing farmers, by the example of others, what it was practicable for them to do themselves. In his county, a few years ago, there was scarcely any clover seed to be got; but by the encouragement afforded by the County Society, enough was now grown to be a source of profit. He could remember when there were no implements used but those made in the States, and now all that they required were made in Canada. It showed that they only required to make a market to have the article manufactured.

He spoke of the importance of having a more full record of their proceedings, and also thought that it would be very advantageous to require exhibitors to give a statement of the manner in which they had produced the articles. This was especially the case in re-

gard to roots, the modes of growing and raising of which people were very ignorant.

Mr. Wade said that the question was whether they should have the meetings of the Association fixed in one place, or have them migrating as heretofore. Granting that the money was found by the localities, it was equally lost to the country. He was in favour of having the meetings fixed at five places.

Mr. Good thought it did a great deal of good to have the meetings of the Association held at different places, as many people could see the Shows in that way who otherwise could not. As to the expense the whole of that was borne by the locality in this case, the town paid £1000 and the county £500.

Col. Thompson said that the Association could never have been got up if the people had not become interested in it, by its being held in different parts of the country, and if it was now confined to one or two localities, the general interest would be lost. As to the great bug-bear—the expense—that was all borne by the locality. He contended that the opinion of the meeting should be taken by putting a resolution.

Mr. McDougall said that the circumstances of the country had altered very much since the first establishment of the Society, and the same argument did not prevail. The money that was spent in making preparations by the locality, would confer much greater benefit if spent in giving additional prizes. He thought they ought to study economy, and with that view he would move that in the opinion of the meeting the future meetings of the Association should be held in three of the largest cities most convenient for that purpose.

J. B. Marks, Esq. said this was not the proper place to put such a resolution: it was the duty of the delegates for all parts of the country to decide the question, as they would have an opportunity of doing so on Friday evening. This meeting had nothing to do with the resolution; it could only be a matter of opinion, he thought that perhaps it would be better to let the present system continue two or three years longer.

Dr. Barker said this was not the proper time to put the question, nor was the proper assembly to decide it. It was not intended to take up the question in this way, but merely to discuss it. Several gentlemen decreed the motion withdrawn.

Capt. Beresford protested against any such resolution being put now, as many delegates whose duty it was to decide questions, were not present. The question would come up on Friday, where they would all be present. Some further discussion followed, and Mr. McDougall finally consented to withdraw the resolution.

The President said that it was the opinion of Col. Johnson, that the most satisfactory method of testing the reaping machines would be to appoint a number of Judges to go into the country and see them in operation, and with reference to putting questions to exhibitors as to the mode of producing the articles they exhibited, he was informed that in the State of New York, the answers were so numerous they could not publish them. He had no doubt a similar result would be found in this country. He also begged to call attention to the very small sum the farmers in this country were willing to pay for the agricultural papers. They would not expect to have the best talent in the country employed upon these papers for half-a-dollar a year. He concluded by stating that the Secretary of the Lower Canada Association was present, and would favour them with some remarks.

This gentleman stated that his only knowledge of agriculture was derived from the lessons he had received from Agricultural Schools in Europe and the United States. There, however, the student put in practice in the afternoon what he learned in the forenoon, and performed all the manual operations himself. He thought it of great importance that they should establish similar schools in this country.

Mr. Buckland had been requested to state that a project was being set on foot in Toronto, to collect all organic compositions, with a view to manufacturing from them what were called artificial manures.

Mr. Denison stated that he had been most exorbitantly charged for the carriage of his stock on the Buffalo and Lake Huron Railway. He had paid eight dollars and a half from Toronto to Paris, and he was charged ten dollars from Paris to Brantford. Such conduct as this had materially injured the Exhibition and the Town of Brantford. He therefore moved "That in the opinion of this meeting the conduct of Captain Barlow in exacting exorbitant rates in violation of promises made to the officers of the Society, reflects discredit upon the Company he represents, and has been detrimental to the Exhibition and to the Town of Brantford."

Some further instances of similar charges were mentioned, and the motion was carried by acclamation. The meeting then separated.

MEETING OF DELEGATES.

TORONTO SELECTED FOR HOLDING THE NEXT SHOW.

The meeting of the last day commenced with a meeting of Delegates, for the election of officers for the ensuing year, and the selection of a place for holding the next Annual Show.

The following Delegates answered to their names:—

Essex—John McEwing.
Kent—D. Wilson, W. Miller.
Middlesex—T. B. Askin, Wm. Bakewell.
Wellington—Thos. Andrew, F. W. Stone.
Perth—W. Smith, W. McCullogh.
Oxford—John Borwick, Jos. Scarf.
Wentworth—H. Ogilvy, Thos. Stock.
Brant—Allan Good, John Tennant.
Welland—John Schofield.
Norfolk—Oliver Black.
Lincoln—E. C. Campbell.
York—W. McDougall, Geo. Miller.
Ontario—E. Burrill.
Hastings—T. S. Farley.
Durham—C. H. Jordison, Matt. Jones.
Northumberland—P. R. Wright, A. Allen.
Addington—Samuel Clark.
Lennox—Alexander Campbell.
Frontenac—Angus Cameron, E. Jackson.
Leeds—Dr. Richmond.

The President congratulated the gentlemen present on the success, in a pecuniary point of view, with which they had met, despite the very unfavourable weather. The proceeds were:—

From sale of badges	$3,177
" " " 15,000 tickets	3,750
" " " carriage tickets	51
" " " booth licenses	586
	$7,564 or £1,891

That was to 10 a.m.; and had no doubt that $500 at least would be added to the funds of the Society during the day.

Judge Campbell, of Niagara then said that there was an understanding that the Vice President should, according to rotation, be elected to the Presidency; he would therefore move that Mr Stevenson, Member of Parliament for the county of Prince Edward, should be the President for the ensuing year.

Seconded by Sheriff Ruttan, and carried.

Mr. Stevenson thanked the delegates for the honour they had conferred on him: and pledged himself to do all that the warmest zeal for the interests of the Society could prompt to make its operations successful.

Col. Thomson, seconded by Mr. Marks, moved the appointment of Mr. William Fergusson as 1st Vice President.

This motion was also carried.

Sheriff Ruttan, believing that the officers of the society should be practical men, proposed the name of Mr. John Wade, of Northumberland, as the 2nd Vice President.

Motion seconded by Mr. McDougall, and carried.

Col. Thomson then moved that Mr. Dennison be Treasurer for the ensuing year—which was carried, and,

Mr. Dennison returned thanks for the mark of confidence again reposed in him. There was another, however, to be performed; and, he would therefore, as President of the York Agricultural Society, move that Toronto be the place where the next annual Show is held. He was authorized to state that the city of Toronto had voted £1,250 to the funds of the Society, and the County of York £300, which he was promised should be raised to £1,000. He could at least guarantee that the sum from the city and county would be £2,000.

Mr. McDougall seconded the motion, urging the advantages the society would gain from the excellent accomodation afforded to visitors in Toronto; and the claims it has for consideration, as it was six years since the show had been held there.

Mr. Saunders of Guelph, seconded by the Hon. Adam Fergusson, moved in amendment that Guelph be the place, offering on behalf of the town and county £1,500.

Judge Campbell, of Niagara, in a long speech, moved in amendment to the amendment that the show be held at Niagara. He offered on behalf of the town of Niagara £1,000 that sum to be largely increased by private subscriptions.

Seconded by Mr. Schofield.

Mr. Barwick, of Woodstock, seconded by Mr. Sparks, moved in amendment to the last amendment that three permanent places for holding the shows at be resolved on, namely Toronto, Kingston, and London, and that the next show be held at Toronto.

Ruled out of order, and laid over as a notice of motion at next meeting.

Several other speakers followed, and on the amendment in favor of Niagara being put to the vote, only three hand were held up in favor of it, sixteen for the motion in favour of Guelph. The main motion in favour of Toronto was, therefore, declared to be carried by a large majority.

THE POTATOE ROT—GENERAL PREVALENCE.

The potatoe disease seems to have returned this year with greater virulence than ever, if we except the first season of its general prevalence. The *cause* is still wrapped in obscurity. All the special theories broached from time to time have been proved untrue, or insufficient to account for the disease. The Rev. C. E. Goodrich, of Utica, N.Y-, has made the potatoe a special study for years and has produced many new varieties; some of which have proved valuable. We have planted some of these for the last three years, and find them *less* subject to disease than the sorts in common use, but still they all show some signs of disease this year. The Rough Purple Chili resisted the attack for about two weeks after the vines of the Cups, Pink Eyes, and "Farmers" had turned quite brown, and the tubers showed extensive disease. Then they began to exhibit the same signs, but to a much less extent. As the subject is one of general interest, we copy the following remarks of Mr. Goodrich, communicated to the *Country Gentleman* of the 27th August :—

Utica, August 5th, 1857.

To the Editors of the Country Gentleman.—You know very well the interest which I have long taken in vegetable pathology—an interest originally awakened in reference to the potatoe. My views of the diseases of the latter plant are found in the Transactions of the N. Y. State Agricultural Society for 1847, '48, '50, and '51.

1. I have there described two aspects of the disease. The first is, that occasioned by the sudden alteration of cold, wet weather alternating with that which was hot and dry. Such weather seems to chill and starve the plant, and hold its juices in a torpid condition until chemical influences become stronger than the vital energies of the plant. Hence arises a deprivation of its circulation, until, in extreme cases the whole plant is destroyed, both root and branch. The external indications of disease in this case, are a yellowish corrugate look of the leaves, the points of many of them becoming steel blue, and others yellow, while all soon die. The flowers fall without setting balls, and often without opening at all. In mild cases the leading shoots dwarf, and are subsequently replaced by a new leading shoot sent out from the axil of some leaf, near the the top of the plant. Mildew is also seen in extreme cases in this connection.

The second aspect of disease is that occasioned by hot, wet weather, continuing usually from two to five or six weeks. This sort of weather seems to impel the crop into a very rapid growth, and wide development of cellular tissue, thus making the plant vascular and sappy. The continued engorgement of the plant with rich and often watery juices, and the absence of dry air and wind to ærate it, and thus aid in its elaborations, seem to bring on a torpor of the plant, much as in the preceding case. The leading mark of disease here is a universal mildew, beginning in small brown points on the leaves,, and rapidly spreading until the leaves, and in extreme cases, the stalks and seed-balls are all involved. Unlike the former aspect of disease, the plants continue in this to flower freely and if late enough in the season, to set balls even after disease has advanced to a hopeless state. In both aspects of disease these indications on the foliage are speedily followed by the injury of the tubers. This result follows naturally and necessarily from the deposition of badly elaborated matter upon them

2. The disease of the potatoe, which is now beginning to manifest itself, is that de-

scribed under the second aspect, and is similar to that seen in 1850, '51, '53, and '55.

In 1850, hot, damp weather began with July 14th, and ended with Aug. 20th—lasting five weeks. In 1851 it began June 14th, and lasted until July 28th, or about six weeks. In 1853 the early and central summer was very hot and dry; the season of wet and only moderately warm weather reached from July 26 to August 7th, that is twelve days. During this period there was an entire revival of the growth of the potatoe crop, and a rapid and large expansion of its foliage. In this State, steady and close hot weather began on the 7th of August, and lasted through the 18th, that is twelve days. The resulting mildew began to be seen on about the 8th, and was at its height on the 14th, constituting the most rapid, and, for the term of its continuance, the most destructive visitation of disease I have ever witnessed. Happily, however, very early crops were too far advanced to be impelled into a second growth by the rains preceding the disease, and so mostly escaped.

In 1855 the season bore a very close resemblance to 1851, that is, the hot wet weather began June 21st, and reached to Aug. 6th, when the weather became cool and dry. In these three principal cases (1850, '51, and '55,) the mildew began to show itself towards the close of each of these periods, ade extended its ravages on the foliage into the subsequent good weather, and its effects on the tubers into the following harvest.

The weather of the present year has not been very like that of any of the years just particularly noticed, but most resembles that of 1855. May and June were wet, cold and cloudy beyond all remembered precedent. The growth of the potatoe crop, like that many others during this period, was slow and dwarfish. With July 4th began a season of hot steady, impulsive weather, such as we rarely see; and notwithstanding the lateness of the spring planting, and the slow progress of the early part of the summer, this weather brought up the potatoe crop nearly to its usual state of forwardness. Since the 19th of July, the weather has been damp as well as hot, rain having fallen in considerable quantities on the 19th, 20th, 21st, 27th, 28th, 30th and 31st, besides many light intervening showers—the whole amounting to 3½ inches of water. Again, yesterday, (Aug. 4th) there fell 2½ inches more.

3. As a consequence of this hot and damp weather, mildew began to manifest on the grapevine, especially where planted in rich and heavy soils, more than a week ago. Even the Isabella and Catawba have not wholly escaped. Mildew was not noticed upon the potato until four days ago, and then on the leaves but not on the vines. Such however is the state of rapid growth in the potato crop, and such the continued hot and damp state of the weather, that a wide pervasion of mildew may be feared, the law of progress in this case being the same as with eruptive diseases, is from merely beginnings to general diffusion. The Early Mountain June, Early Pink Eye, Carter and Kidney, usually show it first, and nearly simultaneously. Then follow the Early Shaw, Flesh Colored, and Western Red. The New Jersey Black or Purple Yam, usually is the last to be struck with disease, and though affected in foliage is rarely injured in tuber.

These remarks on the succession of morbid appearance in the different sorts, are based on the supposition thot they are all treated alike in soil, aspect, culture, time of planting, &c. My imported Rough Purple Chili rarely shows any mildew on the leaf, and still more rarely on the tuber. The new seedlings which I am sending out have a similar exception, except in the case of two or three varieties, in which I have acknowledged a slight liability to disease.

4. The cultivators of potatoes will most certoinly deceive themselves, if they expect to avoid, or even mitigate this disease, by any other than general means, such as are comprehended in dry, loose soils of moderate fertility, early planting, and the use of the strong varieties.

Under these conditions, the presence of disease, even in such seasons as 1846, '50 '51, and 55, will be comparatively light. To the use of the Yam, and Rough Purple Chili for general crops, there are strong objections—to the first on account of its intensely purple flesh, and to the second on account of its hollowness and irregular shape, when cultivated in rich soils. All these objections, however, are overcome in the character of some of the new seedlings, which have been sent out by different individuals. It must be acknowledged, however, that few of these new and hardy seedlings have obtained that high character for the table that is found in the Meshannock, Carter and Winter Pink Eye. Although the experience of the present generation confirms the sentiment of the past—that new varieties of potatoes, however *valuable they may eventually become for the table, are slow in obtaining that character of excellence;* yet few cultivators have the

patience to wait, and hence they cling, many of them, to the exclusive use of varieties which, in years of disease, result in the loss of half of the crop.

Among seeding of the same family, those that ripen the earliest in the season soonest acquire fitness for the table. Thus, among those which I have disseminated for the last two years, the Pale Blush Pink Eye, (a seedling of 1850,) which ripens rather early, has already a high character of excellence for the table. So also, among the seedlings of 1852, the Utica Pink Eye and the Oneida Pink Eye, (two varieties looking almost exactly alike,) are both quite early. These two sorts are not only much better for the table than the Black Diamond, which belongs to the same family, but are intrinsically so.

In conclusion, should the present hot weather continue long, nothing can save the old and feeble sorts from extensive injury by disease. Indeed, farther south, where the weather may have been hotter and the rains heavier, such disease may have already been developed.

C. E. Goodrich.

August 15.—The preceding sheets written on the 5th, were laid aside that I might watch the progress of the disease. In the interval of ten days we have had three heavy rains—on the 10th 1¾, on the 12th and 13th 2, and on the 14th 1¾ inches, making, with the previous heavy rain of the 4th, eight inches of water in the first half of the month. The temperature meanwhile has been variable, sometimes sultry, as in similar weather in 1850, '51, and '55; but on the whole much cooler than in those years, and cooler than from the 19th of July to the 5th of August, of this year.

The increase of mildew on the crop has been less rapid than I apprehended at the former date. But it has been steadily increasing, being most apparent on fields closely planted on a rich soil of clay or clay gravel, and where lying flat and not well drained.

There is almst everywhere an unusually large growth of vines, which exhibit a sappy and tender condition, because grown rapidly in hot, and for the most part damp weather.

The community here are pretty generally anticipating extensive disease. Some large fields are entirely defoliated. In others the mildew is exhibited in patches. In others the slightest indications only of it are seen in the shape of small brown spots thinly spread over the inner and lower leaves. Diseased tubers are occasionally seen, but may be expected to increase rapidly.

August 18th.—Yesterday we endured a cold east storm, beginning the preceding night and continuing until 2 o'clock p. m. The result according to different measurements, varies from 2½ to 3½ inches of water. The late heavy rains, and this last one especially, threatens the potatoe crop with a new and unusual danger; I refer to that arising from the influence of water on the tubers.

It is well known that well ripened potatoes in the wet weather of autumn, will bear immersion in water, while yet not dug, for two or three weeks without danger. The india rubber like closeness of the skin resists the action of cold water a long time. But in the unripe state of the tuber, and amid the warmth of summer, the case is entirely different. The late rains have kept the soil of many fields very wet for the last two weeks. That of yesterday covered many with standing water. Such exposure of potatoes to water results in a soft rot, leaving the flesh usually white. In the present time this cause will interact with disease technically so-called. And even fields wisely planted with reference to time. culture, soil and seed, where no danger of disease need have been apprehended, may yet suffer from this additional cause.

Tropical plants are now, as they always are in such weather, in a very healthy condition. I refer to such varieties as cucumbers, tomatoes, squashes, melons of all sorts, peppers, egg plants, corn, &c. Many of them, however, are a little late in fruiting, although considering the lateness with which they were planted, the fruit is perhaps in an ordinary state of forwardness, the impulsiveness of the central summer having restored the backwardness occasioned by the lateness and coldness of May and June.

But, although tropical plants are generally prosperous under the warm wet weather of the present season, we may expect that many hardy plants will suffer, such as apples, plums, walnuts, cabbage and turnips—the two latter particularly, when such weather extends into the autumn. The fruits and nuts mentioned are rarely as sound and enduring in seasons like the present, as in those which are dry and cooler.

It is with deep regret, Messrs. Editors, that I send you this communication. The extent of ground devoted to potatoes her this year is very large. The prospect of a large and healthful crop was, three weeks ago, very flattering. Should the morbid indications here rapidly developing, extend widely over our country, we may be led to fear a more fatal pervasion of potatoe disease than has ever before afflicted it. While we bow submis-

sively under deserved punishment inflicted by a righteous Providence, we should not be unmindful of the physical causes with which it seems to be connected, nor of the remedy.

C. E. GOODRICH.

CULTIVATION OF PEAR AND OTHER FRUIT TREES.

There is a very general complaint of failure in the cultivation of fruit trees in Canada. The stone fruits especially refuse their accustomed yield. Diseases seem to increase, and the remedies are either not yet found out, or they are not applied. We believe that a great part of the difficulty is owing to careless cultivation. Many people forget that trees require *food*, and will die without it, just as certainly as the living animal. They require food, too, that they can digest, or assimilate, and different species require different kinds of food. A writer in the *Country Gentleman* presents some valuable hints on this subject, which, if attended too, would, no doubt, lesson the complaints now so common about fruit trees dying, and refusing to bear.

"In the manuring of orchards we have learnt much, and solved many problems during the last few years, but we still have a great deal to learn in this respect. For what we do know, we are greatly indebted to chemistry, for expounding, by means of the crucible, the various elements contained in matter. Chemistry is the great telegraph of modern times, now set in operation through that wide and comparatively unexplored territory, scientific cultivation. It has brought and made as clear as noon-day the hidden mysteries of the science of the orchard, and like the philosopher's stone or the magic wand in fairy tale, turned all to gold, and has taught us the lessen that only through the most diligent study can we hope to achieve triumphs in the fruit garden. But our motto must still be *Excelsior*, until our country "shall blossom as the rose," and appear as Grenada did of old to the army of Ferdinand and Isabella, and orchards and gardens cover all our hill-sides. If we make as rapid strides in progress as we have the last few years past, we, perhaps, in time, may obtain the celebrity the French have attained in the cultivation of their orchards, for they much excel the English in this particular. But I am wandering from my subject, and so must return to it. Elliot, in his 'American Fruit Grower's Guide," thus writes of soils and manures for the pear tree:—

"'The pear roots thrive best in a soil where the subsoil is at once dry and moist; that is, where it is open and porous sufficient to admit of free drainage, and yet where the roots extending deeply and freely in it, reach moisture in seasons of extreme drought. Cold clay is a bad sub-soil, and when it exists in the ground of a prospective orchard, it should be deeply and and thoroughly sub-soiled, and well drained. The pear on quince roots succeeds best in rich, deep, moist, loamy ground, even enduring considerable water better than dry sand.'

"The following is the analysis of the ash of the pear, as made by Dr. Emmons:—

	Sap Wood.	Bark.
Potash,	22.25	6.20
Soda,	1.84	......
Chlorine,	0 31	1.70
Sulphuric acid,	0.50	1.80
Phosphate of lime,	27.22	6.50
Phosphate of peroxide of iron,	0.31	......
Carbonic acid,	27.69	37.29
Lime,	12.64	30.36
Magnesia,	3.00	9.40
Silex,	0.30	0.40
Coal,	0.17	0.65
Organic matter,	4.02	4.20
	100.25	98.30

He goes on to say:—"From this it will be seen what is most wanted in the soil to produce healthy foliage and wood in the pear. As a general thing, soils usually are or

become deficient in lime and the phosphates, and the cheapest remedy is liberal dressing of wood ashes and bone dust; or in sections where bone dust is not easily attainable, dig in around the tree whole bones from the daily use of a family, or procured from a slaughter house. Potash, dissolved in water, and applied to vegetable mould from the woods, and this dug in around the tree, is also a cheap and ready way of supplying food requisite. Iron filings, etc., from smith's shops is also good, and hence the impression of some, that through it the blight was cured or prevented, the fact being only that a certain element requisite to health was exhausted in the soil. Oyster shell lime is also an excellent manure. In England all the wood ashes are saved by families, and purchased by farmers at a high price, and have a fixed market value as much as any other market production. Some of the rich farmers give peat to the poorer classes to burn on condition to save the ashes for them, which would be an excellent idea in this country to adopt, particularly in New-Jersey, where it can be found in plenty.'

"Those who wish to read more on the subject of ashes as a manure, are referred to Bridgman's Young Gardener's Assistant, in which will be found an article of some length on this important subject. The above, but particularly bones and oyster shells, are the best manures for the grape vine.

"An article in Tucker's excellent work, the 'Rural Register, for 1855,'—a work which should be in the hands of every cultivator in the country, says: So great is the loss resulting from the stunted and diseased growth occasioned by neglected cultivation, that an intelligent cultivator gave it as his opinion, that 'if nine-tenths of our orchards should be cut down, and the labour and cultivation which they receive be expended on the remaining tenth, more and better fruit would be raised.' It also states as the best manure for fruit trees,

"A mixture of swamp muck, with one half to one quarter of its bulk of stable manure and about one-twentieth of leached ashes. These ingredients should lie in a heap together for a few weeks, and then be worked over. If for peach trees, the soap suds from the laundry, thrown over the heap, will improve it; if for cherry trees, which will not bear high manuring, the proportion of muck should be larger, and with less of yard manure and ashes.

"In speaking of the carelessness of some men in ploughing an orchard, it says:—

"'Farmers may be seen driving their teams and plows directly over a young fifty-cent tree, tearing its bark and risking its life in order to avoid running over an ajacent potatoe-hill, not worth three mills currency. There may be three causes for this strange behavior. One is habit, or doing so because others do. Another is a sort of indefinite notion that trees will take care of themselves. A third is an almost total want of appreciation of the real value of trees.'

"Dr. Kirtland states, 'that orchards on the limestone hills of Ohio invariably afford the best fruit.' The same cultivator tried for his pear trees on worn-out land, specific manures, but his trees only made six inches growth in a season. He then effected a complete renovation by applying a dressing of phosphate of lime, (pulverized bones), ashes and barn-yard manure, with a limited supply of common salt.

"An interesting experiment is stated in the *Horticulturist*, on a large pear tree, bearing cracked, blighted, and worthless fruit, which was restored to health and the production of good fruit. The change was effected by digging three feet distant from the tree a circular trench 4 feet wide and 20 inches deep, and filling this with fresh soil (rich) and turf, and mixing two bushels of scoriæ from a blacksmith's forge, two bushels of charcoal, and two pounds of potash. The soil and potash were doubtless the chief cause of success. Other experiments of a similar character have been equally successful. Thomas, in his American Fruit Culturist, thus writes of manure for the pear tree:—

"'As it contains a large quantity of phosphate of lime, it gives strong promise of being benefited by bone dust. For applying, the bones may be broken and dissolved into a paste, in a large tub, by means of sulphuric acid. The acid should be diluted with two and a half times its bulk of water, and successive portions then added for three or four days, till the bones are dissolved, for which purpose their bulk of the diluted acid will be required. The bone-paste is then mixed with several times as much old manure, peat or compost, and applied so as to give eight or ten pounds of the paste to each large tree, and to smaller ones in proportion. If ground bones only are used, twice that quantity may be applied. As the pear contains also much potash, twice as much ashes as bone may be used in the compost.'

"This, the above, is a valuable receipt, and we feel much indebted to Mr. Thomas, both for this and for many more equally as valuable."

TOPPING AND HARVESTING CORN.

There is much difference of opinion and practice among farmers in the management of their corn crops. Some always practice cutting the stalks soon after the kernels have become glazed or checked, believing that such a course hastens the ripening of the corn; and the removal of the stalks greatly facilitates the process of harvesting, and that green cut, well cured cornstalks are much more valuable as winter forage for cattle, than the same would be if left uncut till the corn was fully ripened, as is the practice of some. We presume this is a correct idea. But experiments made some years since, by the Hon. W. Clark of Massachusetts, seem to prove that the number of bushels of corn per acre was very much lessened where the stalks were cut, compared with portions of the field were the corn was not topped, but all left till the corn was fully ripened. By his experiment, the loss in grain must have been much greater than the increased value of the green cut stalks over the perfectly ripened fodder. But a difference of ten or twelve days time in cutting the stalks might make a material difference in the value of the grain. We think it is the safest way for those farmers that practice "topping" their corn, to cut their stalks quite late, rather than a few days too soon.

Well cured corn fodder is a valuable winter feed for farm stock, and much care should be exercised in saving it in the best possible condition. Many farmers are quite too negligent in this matter. We have seen the stalks cut quite green, and many days too soon, bound in large bundles and put up in large shocks, where it remained during all weathers for weeks, or till the corn was harvested; heavy winds blew over many of the shocks, and drenching rains thoroughly wetted them, thus nearly ruining them as fodder. We have seen others cart them directly from the field as soon as bound in bundles, where from want of room and care a large portion of them became mouldy, and nearly rotten and worthless. We know some careful farmers that pursue quite a different course. They do not top their corn until most of the tops of the spindles are dead, and many of the husks have lost their green color. They cut their stalks in fair weather, bind them in small bundles, cart them to the barns, and place the bundles *astride* of poles extending from beam to beam across the barn floor. Here they dry without heating or growing mouldy. If they have not room enough over the barn floor, they make use of hovels or sheds, in curing them. Those that practice this method think they are fully compensated for all extra labor, in the enhanced value of the fodder.

Many farmers prefer letting the crop stand till the grains are principally glazed, and then cutting all near the surface of the ground, and shocking in the field, letting it remain there till dry enough for husking. Some contend the corn ripens as well as if left upon the separate hills. The fodder, as a whole, is thought to be worth much more cured by this method, than by any other process. The crop, when thus cut up and shocked, is placed beyond injury from frost—a matter of much consequence some years. There is but little if anything gained by cutting and shocking corn after it has been stricken by frost. In cutting up the corn as soon as fairly glazed, the fields can be cleared in season for sowing winter wheat or rye—sometimes a matter of much consequence.

Some contend that the soundest and heaviest corn can only be grown by letting "nature take its course," that is, let the whole plant remain uncut till the corn is "dead ripe." This course, probably, may insure the greatest weight of corn per acre, if the autumn is favourable to its perfect maturing. We have more than once pursued this course, but found the labour of harvesting much greater, and thought the fodder less valuable.

Seasons vary so much, and the circumstances of farmers differ so greatly, (to say nothing of their prejudices,) that it would be idle for any one to attempt to point out *the* one best way—or rather, to say there was but *one* best way under all circumstances.

From present appearances, and the best information within our reach, we think it may be pretty safely predicted, that over a wide range of our country, this is not destined to be a great corn year. A large part of the growing corn is too late to fully mature, unless we have an unusually warm September and October, a circumstance hardly to be expected. Therefore it will probably be the safer course for most farmers to cut up and shock their corn as soon as it will in any way answer,—that is, if it can be done before receiv-

ing much injury from frost; by so doing they may save much in the value of fodder, and much corn would ripen in the shock that would be nearly ruined by frost. We have several times seen corn cut up, and tied in moderately sized bundles and slung across poles over the barn floor, where it has dried perfectly, and the fodder was much better than it would have been had it been shocked in the field. We have seen various methods of shocking corn in the field. Some put a dozen large bundles into a shock; such large stacks do not dry well. Others cut and stand it round a hill purposely left uncut. We have seen corn very safely stooked by only using five bundles to the stook—one in the centre, and one on each of the four sides; a band of rye straw was tightly tied around the whole some four feet from the ground, and the tops of the stalks bent over and tied down. Such stooks stand better than larger ones, and also dry much better.

Corn, when harvested before it is properly ripened, and dried in the field, as much of it probably will be in the coming harvest, is sometimes injured when stored in large quantities in the crib, or the slatted corn house. If dry, windy weather follows after the corn has been cribbed or housed, it generally dries well, but if long continued damp or rainy weather succeeds, the corn is very liable to heat and mould, &c., injuring its mealing qualities. To guard against such a loss, we have known farmers to have a tight box stove in their corn houses, and they kept up a brisk fire a portion of the time during the damp weather, thereby drying their corn very fast, and saving it from injury.

The labor of manuring, ploughing, planting and hoeing an acre of corn, is no trifling job in many situations of the country, and it should be the aim of the farmer to make the most of this labor, and not cheat himself out of a portion of his work by suffering his corn or corn fodder to be injured or wasted through negligence or lack of care on his part.—*Country Gentleman.*

The New Kind of Paper.—It appears that the "parchment paper" recently invented by Mr. Gaine, of England, is soon to be manufactured and brought into general use. According to the London Mechanic's Magazine's report on this matter, and which is remarked upon approvingly by the Scientific American, Mr. Gaine instituted a series of experiments to discover the effects of acids of different degrees of strength upon vegetable fibre; and he succeeded in discovering that when paper is exposed to a mixture of two parts concentrated sulphuric acid of the specific gravity of 1,854, with one part of water, for a short time, simply drawing it through the liquid, it is immediately converted into a strong, tough, skin-like material. All traces of the sulphuric acid must be instantly removed by careful washing in water. If the strength of the acid much exceeds or falls short of the above degree, the paper is either charred or converted into dextrine, or if it is allowed to remain for many minutes in the sulphuric acid after the change in its texture has been effected. In a little more than a second of time, a piece of porous, weak and unsized paper is converted into a parchment paper, a substance so strong that a ring of it, seven-eigths of an inch in width, and weighing no more than twenty-three grains sustains a weight of ninety-two pounds; and a strip of parchment of the same dimensions supported fifty-six pounds. Like parchment, it absorbs some water, but it is even indestructible by water. Printed paper is capable, by this process, of being converted into parchment paper without obliterating the printing. If further trials are successful this will prove a most valuable discovery.

Lard and Tallow Candles.—The following method of making the above named candles is described in the *New England Farmer* by a correspondent:—"I kept both tallow and lard candles through the last summer, the lard candles standing the heat best, and burning quite as well and giving as much light as tallow ones. Directions for making good candles from lard: For 12 lbs. of lard take 1 lb. of saltpetre and 1 lb. of alum; mix and pulverize them; dissolve the saltpetre and alum in a gill of boiling water; pour the compound into the lard before it is all quite melted; stir the whole until it boils, and skim off what rises; let it simmer until the water is all boiled out or till it ceases to throw off steam; pour off the lard as soon as it is done, and clean the boiler while it is hot. If the candles are to be run, you commence immediately; if to be dipped, let the lard first cool to a cake, and then treat it as you would tallow.',

Separating Bran from Starch.—A correspondent states that in the manufacture of starch the finer particles of bran penetrate through the finest sieves, and that an improvement which would remedy this evil would be valuable.

THE RECENT SALES OF SHORT HORNS.

Several important sales of thorough bred cattle have been made the present season. The prices obtained, and the numbers who attended, notwithstanding the tightness of the times, show that the spirit of improvement is abroad, and that thorough bred stock is at last appreciated.

We have no doubt it will be interesting to our readers to know the particulars of these sales, and the names of those into whose hands the stock have gone. The sale of the Messrs. Wade came off on the 26th and 27th of August.

The day of opening was most favourable; but owing to the late season, and the unfinished state of harvest operations was not so large as was expected and consisted chiefly of farmers from the neighboring district, with very few Americans.

We consider the prices realized by no means large, but as far as could be expected in the present state of our monetary affairs. The sellers hardly, we believe, consider the realisation sufficient to indemnify them for the heavy risks and outlay they have incurred for a long series of years. After offering a few ordinary Leicesters, which sold at fair prices, the sale commenced with the perhaps most extensively known short-shorns of the late Mr. Ralph Wade, jun., whose unfortunate death at the Desjardin catastrophe we lately had to deplore. We are sorry that the condition of this beautiful lot of cattle showed, in an unmistakable manner, the want of their owner's managing hand; and we have no doubt this influenced materially the prices realized.

"Princess Julia," a large, rough-framed cow, the mother of a number of younger cattle, colour dark roan and white, sold, with a calf just dropt, for $195, to Sidney Smith, Esq., M.P.

"Dairy Maid," a splendid light roan and white cow, which took the first cow prise last year at Kingston, in two high condition, and with some little fear as to breeding, brought only $200—going to Mr. Sheldon of New York State.

"Lady Lambton," a beautiful dark roan cow, but in low condition, having produced twins since her owner's death, was bought by A. Alcorn, Esq,, as Hamilton Township, a most spirited farmer, for $210

"Bob," the twin bull calf of the above, a beautiful, thick set little fellow, with a close velvety coat of the richest dark roan, just the kind of animal by which his late owner acquired his reputation, went to Mr. Elliott, of Matilda, at $105.

"Victoria," a large framed, broad, dark, roan cow, rather thin, sold to Matthew Jonas, Esq., of Darlington, for $190.

"Dahlia," a fine dark red roan and white cow, the flower of the flock, in prime condition, with her heifer calf, was also bought by Mr. Jonas for $465.

"Water Lily," a white cow, of good shape, but out of condition, hardly showing to be in calf—$116 to Mr. Sheldon.

"Water Witch," a white two-year-old heifer, went to Mr. G. Elliott, of Port Granby, Clark Township, for $140.

"Young Clarentine," a beautiful light roan heifer, two years old, was, we understand, retained for the children.

"Clipper," a rich dark roan, one year old, very close, heavy coat, was also, we believe, retained

"Snowberry," a pretty white heifer calf, out of "Clarentine," bought by Mr. Elliot, of Matilda, for $85.

"Princes Royal," a very pretty roan and white yearling; we did not ascertain her destination.

A few grades of Mr. Ralph Wade's stock were next offered, but, being in low condition, their prices were not worthy of note.

The grades of Mr John Wade were next offered, and a lot of finer animals, or in better order, we have rarely had the pleasure of seeing—not fat, but breeding order.

"Beauty," a fine light roan, sold for $125, to G. E. Castle, Esq., Hamilton Township.

"Pansy," a rich red and white cow, went to Mr. Sinclair, of Cobourg, for $100.

"Clara Fisher," a light roan, sold to Mr. Esson, of Keen, Otonabee Township, for $75,

The thorough-bred bulls were next offered, but few buyers of this stock seemed to be on the ground, and the biddings were lifeless,

"Sir Charles Napier," imported bull, was not bid on.

"Lord Raglan," four-year-old, large, dark and white bull, went to G. E. Castle, Esq., for $185.

"General Simpson," a fine roan, sold to T. Greenshaw, Hamilton Township.

"Napoleon," sold to M. Jonas, Esq.

"American Belleville," a splendid rich white bull, whose sire was for some years the champion of England, was sold to Timothy Windatt, Esq., an enterprising improver in Clark Township for $110.

"Washington," a dark roan, sold to John Bellwood, jun., Esq., of Clark, for $200, &c., &c.

The grades of Mr. Ralph Wade, sen., a very choice lot of animals, which we have not room to particularize, ranged from $60 to $80 each.

Next came Mr. Ralph Wade's sen., thorough-breds :—

"Victoria," dark roan, $115, to C. A. Jordison, Esq., of Hope Township.

"Dehlia," white, to Mr. Francis Fowler, jun., Huron District, for $250.

"Duchess" and "Newham Lily," two very fine cows, to J. Bellwood, jun., Esq., of Clark, for $650.

The Crimean heroine, "Miss Nightingale," a pure white, to T. Wyndon, Esq., of Clark, for $105.

"Lily," white, three years old, to C. A. Jordison, for $157.

"Lily 2nd," a yearling, to Mr. Sheldon, State of New York, $80.

During the evening and next day a large number of horses were sold at good prices. The few imported Leicester sheep hung heavily on hand for lack of purchasers in that line. Some time was also occupied in selling grade cows and sheep, the property of neighbouring farmers. A number of the fine thorough-breds of Mr. John Wade were sold by private sale.

Among others, the writer secured two very fine heifers at a fair price.

The next sale in order, took place in Markham. It consisted chiefly of sheep imported by Mr. Simon Beattie. The following prices were realized :—

2 two Shear Leicester Ewes, £32 each ; 2 two Shear Leicester Ewes, £20 each ; 2 one Shear Leicester Ewes, £11 5s. ; 2 two Shear Costwolds Ewes, £20 each ; 1 one Shear Leicester Ram, £25 ; 1 one Shear Leicester Ram, £17 10s. ; 1 Leicester Ram Lamb, (Canadian bred,) £11 5s. ; 1 Leicester Ram Lam, (Canadian bred,) £7 ; 1 imported Durham Heifer, two years old, £78 ; one imported Highland Pony, 2 years old, £33.

The last sale which we shall notice at present, is that of F. W. Stone, Esq., of Guelph. It came off at his farm, near Guelph, on the 16th Sept., was well attended, and the prices paid were liberal, though not in all cases satisfactory to the owner.—Mr. Stone reserved a few animals and exercised the right of bidding once on those which seemed likely to go off at unremunerative figures. The following is a list of the sales, with prices and names of purchasers. The lots omitted were either bid in by Mr. Stone, or passed for want of a bid :—

COWS, HEIFERS, AND CALVES.

Lot.		Price.
1.	Henry J. Boulton, Esq., Humberford, County York, C. W	$110
2.	Edward Jones, Stamford, C.W	180
3.	Dr. Twining	105
4.	Samuel Hodgkins, Guelph	180
6.	Mr. Buffum, New Hampshire, U. S	110
7.	Henry J. Boulton, Humberford, C.W	160
8.	Edward Jones, Stamford, C. W	250
9.	John Snell, Chinguacousy, C.W	650
11.	Mr. Buffum, New Hampshire, U.S	255
12.	Arthur Hogge, Guelph, C.W	200
13.	Isaac Anderson, West Flamboro', C.W	120
14.	Henry J. Boulton, Humberford, C.W	200
16.	Wm. Whitlaw, Guelph, C.W	90

17.	Henry J. Boulton, Humberford, C.W.	410
19.	Thos. L. Harrison, Morley, St. Lawrence County, N.Y.	325
20.	John Dew, Toronto, C.W.	120
21.	Paoli Lathrop, South Hadley Falls, Massachusetts	380
23.	Henry J. Boulton, Humberford, C.W.	205
24.	John Snell, Chinguacousy, C.W.	650
25.	John Iles, Puslinch, C.W.	150
26.	John Dew, Toronto, C.W.	75
27.	John Snell, Chinguacousy, C.W.	140
28.	Mr. Emerson, Mountain View, California	305
29.	Mr. Sheldon, Geneva, N. Y.	75
30.	John Iles, Puslinch. C.W.	750
36.	Paoli Lathrop, South Hadley Falls, Massachusetts	509
44.	Mr. Emerson, Mountain View, California	450
46.	Justin Ely, West Springfield, Massachusetts	500
47.	Mr. Emerson, Mountain View, California	200
	30 head	$8000

BULLS AND BULL'S CALVES.

1.	Arthur Hogge, Guelph, C.W.	500
3.	Thomas Arkill, Puslinch, C. W.	200
6.	Henry J. Boulton, Humberford	600
7.	Mr. Emerson, Mountain View, California	650
9.	Mr. Emerson, Mountain View, California	800
10.	Mr. Emerson, Mountain View, California	250
11.	Henry J. Boulton, Humberford,	430
12.	Thos. L. Harrison, Morley, St. Lawrence County, N.Y.	150
13.	Justin Ely, West Springfield, Mass.	160
14.	James Phin, Waterloo, C.W.	100
15.	Paoli Lathrop, South Hadley Falls, Mass.	200
16.	Gavin Caldwell, Pilkington, C.W.	125
18.	James Cowan, Waterloo, C.W.	50
	13 head	$4205
	Total	$12,205

A number of Cotswold sheep were sold at an average of about $100 each.

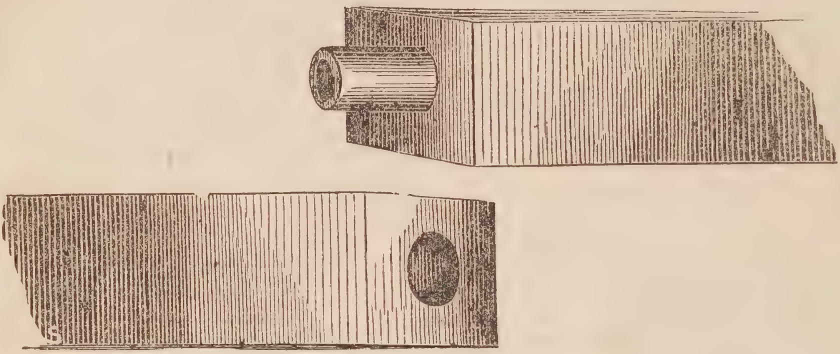
HARVESTING CARROTS.—Grind a hoe sharp, and send a hand along between the rows to cut off the tops, while another hand with a team plows a deep furrow along side of the first row, close to the carrots; the next furrow will turn them out. Two boys with a large basket can follow, dig up the carrots, and put them in the wagon. When your carrots are harvested the ground is fall ploughed. This we believe to be a good mode.

SOAPSUDS.—In days that once were, the soapsuds went to the gutter as regularly as the washing-day way was ended, and there are to many who allow the plan to be followed in the present day. All do not yet seem to have learned that a tubful of strong soapsuds is worth as much as a fertilizer and a wheelbarrow of good manure. Now every bucket of soapsuds will be thrown where it will not be lost. The garden is a good and convenient place to dispose of it, but the roots of grape vines, young trees, or anything of this sort will do as well.

It is estimated that 80,000 persons are employed in the shoe manufactories of Massachusetts. The 218, wholesale and jobbing boot, shoe and leather dealers of Boston, sell yearly $30,100,000, the 106 hide and leather dealers $25,650,000, and the retailers $1,390,000, making an aggregate of $61,140,000. Four of the shoe-houses do a business of over $1,000,000, annually, two over $800,000, nine over $500,000, and thirty-eight over $200,000.—Three leather dealers have an annual trade of more than a million, three more than $800,000, seven more than $500,000, and thirty-four more than $200,000.

A NEW INVENTION.

Mr. L. D. Campbell, of this City, has set up a machine for boring tubes for conducting water, and also for Chain Pumps, which performs its work admirably and, with astonishing speed. The above cut represents the ends of two pieces of scantling, eight feet long, as prepared to be joined together. Mr. Campbell says,—



"That his tubing is made from solid Pine or any other scantling from 3½ to 6inches square, with 1½ to 3 inch bore according to the pressure required, in pieces 8 feet long, *accurately fitted* with a *socket joint*, both air and water-tight. As this machine bores directly through the centre every time, the timber requires to be only large enough to sustain the pressure wanted, and the smaller the wood the more perfectly it becomes saturated with water, and the longer it will last. At the same time these Pipes never stop up from impurities of the water, nor are they liable to be flattened like lead pipe. They are also free from rust or poisonous oxides, lasting nearly or quite as long as lead or iron pipe at only one-sixth the cost."

This tubing can be furnished at $5 per 100 feet, one and a-half inch bore. See his advertisement.

The Tide in The Bay of Fundy.—A summer tourist writes from Windsor, N. S. that the tide in that region is worth a visit to witness. At Windsor it rushes in from the Bay of Fundy, to the height of twenty-five or thirty feet. At the ebb a vast expanse of mud is brought to view, and the beds of deep streams are converted into rivulets. But the tide at this point is not attended by the sublime demonstration witnessed in Chignecto Bay and the Basin of Mines, into which the Bay of Fundy is divided. Setting in obliquely on the coast of North America, the tide "seems to range along that coast in a channel or bed, gradually narrowing till it is stopped in the Bay of Fundy, where the accumulation of water becomes tremendous." The tide approaches with a prodigious noise in one vast wave, that is seen many miles off, and the waves rise to the height of more than seven feet. Swine exhibit a peculiar penchant for the shell fish uncovered by the receding water, and root vigorously until the distant rumble of the "bore" or approaching wave is heard, which they detect with remarkable readiness, when the whole herd turn tail and make for the nearest land. Speaking on the same subject, a recent writer says:—

"A vast and uninterrupted body of water, impelled by the trade wind from the coast of Africa to tha American continent, strikes the Nova Scotia shore between 44 deg. and 45 deg. North latitude, with a force almost adequate to its total annihilation. A barrier of fifteen miles only in width, between the Atlantic Ocean and Gulf of St. Lawerence, seems to have escaped such a catastrophe—while a space 100 miles in length and upwards 40 in breadth, has been swallowed up in the vortex, which, rolling its tremendous tides of sixty and seventy feet in perpendicular height up the beds of the adjoining rivers, has converted them into inland seas."

THE CHINESE SUGAR CANE.

This new plant—new to this continent—bids fair to prove a valuable addition to the list of cultivated vegetables in the South and West. We hear of some cases in the western part of Canada where it is ripening its seed, but in this neighbourhood, we doubt if any perfect seed will be obtained this year. The season has not been favourable to plants of this family, and it will not be fair to condemn the *Sorghum* for a single failure. We planted a few hills, rather late, which have grown finely, but show no appearance of seed at this date (Sept. 25th). The following is from a Maine newspaper, a part of the Union not so favourable as Western Canada:—

The cultivation of the Chinese sugar cane is yet an experiment, and a most interesting experiment to all classes of the people. If it succeeds, we have a new and inexhaustible source of molasses and sugar, which are now so difficult to be obtained. It has this year—when the season has not been very favourable to it—been cultivated with various success in many parts of the country. Some of our northern farmers have thought that it might be profitable for fodder, but nothing else; others that it would make molasses but not granulate, and therefore be unfit for sugar; while others have been most hopeful that it would answer all the ends promised. Hereabouts it did not grow well in the early part of the season, but has since done better, and we now find it ten and twelve feet high, and standing the cold better than corn.

In other sections of the country it promises better than here. The *Chicago Journal* says:—

"In the Chinese sugar cane we are now confident we have the source of an almost unbounded supply. It will flourish everywhere in the Union, and can be raised at the West as easily and cheaply as corn. Where then, shall we fix the limit of its culture save in the demand for sugar and molasses? The prairies of Illinois, besides growing all the breadstuffs they do now, might almost supply the markets of the world with those articles. We shall be content, however, for the next two or three years, with enough of each to meet the home demand. The business can be indefinitely extended thereafter.

In Michigan and Ohio, experimenters are quite as sanguine as the Chicago men; and at the south all accounts are in its favour. If it proves valuable at all, it no doubt will open the new lands of the southwest, and we see that G. W. Kendall, formerly editor of the New Orleans *Picayune*, who is now farming in Texas, hopes great things from it. He writes:

"I have an immense crop of Chinese sugar cane considering the amount of land planted. I hardly dare say how much seed I think I can raise to the acre, while the amount of fodder is prodigious. As I look at it, and am divising plans to save it, I cannot help thinking of the poor fellow who won the elephant in a raffle—he found he had got too much of a good thing, and did not know what to do with it.

That the Sorgho Sucre stands a drought better than any thing else, is past all question, I proved it last year and this year I have double confirmation. Rows of it are standing in my corn field even here, with well matured, ripe heads, where the other grain has come to nothing. All that it wants is moisture enough in the ground to bring it up, and then a single, shower to give it a start,, and it will go on and mature when everything else fails.

Many of my friends in this section are sanguine that this new grain or plant will drive all others out of the ground, or that it will at least effect a perfect revolution in the way of farming in Western Texas. They are saving the seed to plant and for bread, they are making syrup and sugar of the juice of the stalk, they are feeding it out as green fodder, and saving it up for dry. No part of it is wasted; catttle, horses, sheep and hogs eat it clean, from the ground upwards, when the stalk is ripe, and gain strength and grow fat upon it. An immense quantity of it will be planted next year."

Bed Bugs.—The weed known as "smart weed," which may be found in abundance along ditches, roads, lanes or barn yards, is an effectual and certain destroyer of the bedbug. A strong decoction is made of the herb, and the places infested with the insects well washed with it.

WINTERING VERBENAS, &c., IN PITS.

At this season of the year numbers of our readers we doubt not feel bad to think that in so short a time they must lose their pets—the *flowers*, which have so delighted them during the summer. Perhaps they were the present of some kind friend, and they would like to save them. No green-house have they; what can be done? Quite likely the following simple plan, may set them to work:—

That the thing is feasible and possible with the Verbena, we are quite sure, and it is very likely with any ordinary bedding out plants, if they are kept *dry* while in the dark. Much, very much depends on this one particular point, to secure which the bottom of the pit should be so situated that no water could stand in it at any time. And charcoal or coarse cinders would be better for the bottom than fine saw-dust.

"I succeeded in wintering some three hundred plants in a pit made like a common hot bed, with the exception of strong posts at the corners, and two upon each side at intervals of three or four feet. The frame was about twelve feet long, five wide, five and a half high at the back, and four in front, this gave a pitch to the sufficient to carry off the the drip from frost gathered upon the sash; the front edge was nearly level with the surface, leaving just room to slide the sash down a foot, which gave ample room at the top for the admission of fresh air when neccessary.

The ground in front of the pit should have sufficient slope to carry off the water. The outside was lined with tan one foot thick and two feet deep in front, and reaching nearly to the top at the back and ends, being well secured with boards nailed to the frame work of the pit and projecting like a roof. In this way the rains and melted snows are conducted off, thus keeping the packing perfectly dry. I presume dry leaves, straw, or saw-dust, would answer equally as well as tan, and to many would be far more economical and convenient.

The bottom of the pit may be covered three inches with dry saw-dust, upon which lay a floor of rough boards, Against the back of the pit I put up temporary shelves, the upper one coming within eighteen inches of the sash; upon this the plants may be kept during the early part of winter, removing them towards the bottom of the pit as the cold weather increases, until they are finally placed upon the floor. The shelves may then be removed in order to let in all the light possible.

The plants will require but very little water, just enough to keep up a moisture about roots; but *especial pains* should be taken to *let in fcesh air* upon them every mild sunny day, between the hours of twelve and two.

At night, the sash (which were single) were covered with straw mats, also in severe cold, cloudy days. Entrance to the pit may he had by raising one of the sash in front, and having a temporary step upon the inside.

The snow should be swept from the sash immediately after a storm."—*Snow's Catalogue for* 1857.

To Pickle Cucumbers.—Cucumbers for pickling should be carefully cut from the vines rinsed in cold water, (not washed,) and after draining, place them in a tub or firkin, the bottom of which should be previously sprinkled with pure salt; put a layer of cucumbers, sprinkle white with salt, and thus alternately till your tub is full. Cover them carefully with a cloth, and have a wooden cover or follower to put on after the cloth, on which place a weight sufficient to keep your pickles under the brine, which will accumulate as you fill it up.—Whenever the cloth is removed to add fresh cucumbers, be careful to keep the scum that rises on the top of the cloth, and rinse it of with water, as it will have a tendency to soften the pickles if it should become mixed with the brine. When wanted for use, soak your pickles in a tin or wooden vessel, in warm water till fresh enough, then scald in vinegar, and season with spices as you like.

Tobacco Poison.—The French poet Santeuill was killed by a little snuff being thrown into his wine-glass at the Prince of Conde's table. Bocarmo, of Belgium, was murdered in two minutes and a half by a little nicotine, or alkali of tobacco. Dr. Twitchell believes that sudden deaths and tobacco are found together, and he sustains this opinion by an array of facts altogether conclusive. I can give the names of scores of men, who were found dead in their beds, or fell dead in the streets orelsewhere who had been the victims of this poison.

RULES FOR HOME EDUCATION.

The following rules we commend to all our patrons and friends, for their excellence, brevity, and practical utility. They are worthy of being printed in letters of gold, and of being placed in a conspicuous place in every household. It is lamentable to contemplate the mischief, misery and ruin which are the legitimate fruit of those deficiences which are pointed out in the rules to which we have reference. Let every parent and guardian read, ponder and inwardly digest:—

1. From your children's earliest infancy, inculcate the necessity of instant obedience.
2. Unite firmness with gentleness. Let your children always understand that you mean what you say.
3. Never promise them anything unless you are quite sure you can give them what you say.
4. If you tell a child to do something, show him how to do it, and see that it is done.
5, Always punish your children for wilfully disobeying you, but never punish them in anger.
6. Never let them perceive that they vex you or make you lose your self-command.
7. If they give way to petulence or ill-temper, wait till they are calm, and then gently reason with them on the impropriety of their conduct.
8. Remember that a little present punishment, when occasion arises, is much more effectual than the threatening of a greater punishment should the fault be renewed.
9. Never give your children anything because they cry for it.
10. On no account allow them to do at one time what you have forbidden, under the same circumstances, at another.
11. Teach them that the only sure and easy way to appear good is to be good.
12. Accustom them to make their little recitals with perfect truth.
13. Never allow of tale-bearing.
14. Teach them self-denial, not self-indulgence, of an angry and resentful spirit.

If these rules are reduced to practice—daily practice—by parents and guardians, how much misery would be prevented, how many in danger of ruin would be saved, how largely would the happiness of a thousand domestic circles, be augmented. It is lamentable to see how extensive is paternal neglect, and to witness the bad and dreadful consequences in the ruin of thousands.

Natural Self-Printing.—A new era has dawned in the publication and historical representation of scientific objects by the introduction of natural self-printing. This is the most important discovery made in the art of printing since Guttenberg's invention, and the honor of it is due to Dr. Alois Auer, of Vienna. We will describe the successive steps of this process. In order to obtain a copy from the original corresponding thereunto in its minutest details, be it a plant, a flower, an insect, a piece of cloth, or any inanimate object, we must proceed in the following manner,

Place the object to be printed between a well polished copper plate and a lead plate, and then let the two plates pass between two cylinders moving parallel to each other. The pressure produced by the cylinders causes the original to leave a perfect picture of itself upon the lead plate. This plate needs no special preparation, but the common lead plates sold in every tin store will answer every purpose, if they are only smooth on one side. After being submitted to this pressure between the cylinders, the lead plate will no longer be perfectly flat, but slightly bent to the form of the cylinder; it must therefore be placed upon a smooth, hard surface, that its shape may be restored both through its own weight and a little mechanical aid. As soon as this is done, one or more copies can be taken from the plates, if it be charged with any colored fluid, and treated generally as any copper plate form when you wish to get an impression. It is evident that the copies taken directly from the lead plate must be limited in number, as the soft lead cannot long resist this pressure, and soon becomes, in consequence, unimpressible. But to obtain a large number of copies the lead form may be stereotyped, or a galvanic precipitate thrown upon it, to make a printing plate from which a proper form may be obtained. The lead plates only need to be subjected to the action of a smoothing cylinder to render them again fit for use, and the copper plates may also be used again.—*N. G. in Scientific American.*

PRAISE YOUR WIFE.

A farmer's wife who reads the *Agriculturist* complains that we give "advice to wives" without anything *per contra* for husbands. We were not aware that we had been guilty of any partiality in the case, and therefore willingly give room to the following extract which she kindly sent us:—

Praise your wife, man; for pity's sake give her a little encouragement. She has made your home comfortable, your hearth bright and shining, your food agreeable,—for pity's sake tell her you thank her, if nothing more. She don't expect it, it will make her eyes open wider than they have this ten years, but it will do her good, for all that, and you too.

There are many women to day thirsting for a word of praise, the language of encouragement. Through summer's heat, through winter's toil, they have drudged uncomplainingly, and so accustomed have their fathers, brothers, and husbands become to their monotonous labours, that they look for, and upon them as they do the daily rising of the sun and its daily going down. Homely, every-day life he may be made beautiful by an appreciation of its very homeliness. You know that if the floor is clean, manual labour has been performed to make it so. You know if you can take from your drawer a clean shirt whenever you want, somebody's fingers have ached in the toil of making it so fresh and agreeably lustrous. Every thing that pleases the eyes and the senses, has been produced by constant work, much thought, great care, and untiring efforts, boldly and mentally.

It is not that many men do not appreciate these things and feel a glow of gratitude for the numberless attentions bestowed upon them in sickness and in health, but they are so selfish in that feeling. They don't come out with a hearty 'Why how pleasant you make things look, dear wife! or, 'I am very much obliged to you for taking so much pains!' They thank the tailor for giving them 'fits;' they thank the man in the full omnibus who gives them a seat; they thank the young lady who moves along in the concert room; in short, they thank everybody and everything out of doors, it is the custom, and come home, tip their chairs back and their heels up, pull out the newspaper, grumble if the wife asks them to take the baby, scold if the fire has gone down; or if every thing is just right, shut their mouth with a smack of satisfaction, but never say, I thank you?'

I tell you what, men, young and old, if you did but show an ordinary civility toward those common articles of house-keeping, your wives, if you would give them the one hundred and sixtieth part of the compliments you almost choked them with before they were married—if you would stop the badinage about who you are going to have when 'number one' is dead, if you would cease to speak of their faults, however banteringly before others, fewer women would seek for other sources of happiness than your apparent so-so-ish affection.—Praise your wife, then, for all the good qualities she has, and you may rest assured that her deficiencies are fully counterbalanced by your own.

Medical Use of Salt.—In many cases of disordered stomach, a teaspoonful of salt is a certain cure. In the violent internal aching, termed colic, add a teaspoonful of salt, to a pint of cold water; drink it and go to bed, it is one of the speediest remedies known. The same will revive a person who appears almost dead from receiving a fall.

In an apoplectic fit, no time should be lost in pouring down salt and water, if sufficient sensibility remain to allow of swallowing it; if not, the head must be sponged with cold water until the sense return, when salt will completely restore the patient from the lethargy.

In a fit, the feet should be placed in warm water, with mustard added, and the legs briskly rubbed, all bandages removed from the neck and a cool apartment procured if possible. In many cases of severe bleeding at the lungs, and when other remedies failed, Dr. Rush found that two teaspoonsful of salt completely stayed the blood.

In case of a bite from a mad dog, wash the part with a strong brine for an hour, and then bind on some salt with a rag.

In toothache, salt and warm water held to the part, and removed two or three times, will relieve it in most cases. If the gums be affected, wash the mouth with brine. If the teeth be covered with tartar, wash them twice a day with salt and water.

In swelled neck, wash the part with brine, and drink it also twice a day, until cured.

Salt will expel worms, if used in food in a moderate degree, and aids digestion, but salt meat is injurious, if used much.

INDIAN CORN.

Maize or Indian Corn, originated in America, and is not yet, we think, cultivated to any extent on the European continent. Though the people of Great Britain cannot be made to appreciate its merits very fully, the aggregate exports of corn in 1856, in the form of whole grain, meal, cornstarch, farina, etc., amounted to between seven and eight millions of dollars, or about one-fortieth of the whole exports of the country, and 6,700,000 bushels, considerably more than half, went to England alone.

Corn has always been an important article in this country, both of consumption and export. The total amount of this produce exported in 1770 was 578,349 bushels; in 1791, 2,064,936 bushels, of which 151,695 were Indian meal. The value of corn and its manufactures exported from the United States in 1830 was $597,119; in 1835, $1,217,665; in 1840, $1,043,516; in 1845, $1,053,293; in 1850, $4,652,804. The export increases more rapidly than the production. The export of corn quadrupled between 1840 and 1850 while the production did not quite double.

The great amount of invention bestowed on corn planters, corn cutters, shellers, cob grinders, etc., tends each year to increase the amount of production. It has been estimated that, as a general rule, seven pounds of corn will produce one pound of pork; so that in localities where through distance from market or from transportation facilities, the cereal cannot be raised as a profit for sale, it is frequently the material used in fattening the more concentrated form of diet, and on which, consequently, the freight is less. Cob meal we believe, is most valuable for animals that chew the cud; horses and hogs, as a general thing, deriving less benefit from the cob-grinding inventions. With all animals however, we believe, there is a perceptible advantage realized by mixing the cob with the denser meal.—*Scientific American.*

Funny Rat Trap.—A correspondent of the *Genesee Farmer* relates the following funny way of catching rats: "I build my corn crib on posts about eighteen inches high, made rat-proof except at one of the back corners. Here, where they will like it best, make a nice hole with a spout five inches long on the outside, where they can go in and out and eat at pleasure. Then, if I think the rats are too numerous, I take a bag, after dark, and slip the mouth over the spout on the outside of the granary. Then send "Ben" in at the door with a light, and the rats and mice will run into the bag. Then slip the bag off the spout, and slap it once or twice against the side of the granary. Turn out the dead, and in an hour or two repeat the process. After all are killed, stop up the hole till new recruits arrive, which catch the same way."

To Cleanse Mattrasses.—Hair mattrasses that have become hard and dirty, can be made nearly as good as new by ripping them, washing the ticking, and picking the hair free from bunches, and keeping it in a dry, airy place several days. Whenever the ticking gets dry, fill it lightly with hair, and tack it together.

Healing Ointment for Wounds, &c.—Take a quarter of an ounce of white wax, and half an ounce of spermaceti, and put them in a small basin by the side of the fire, till the wax and spermaceti are dissolved. When cold, the ointment is ready for use. This is an article which it is much better to make than to purchase. When you make it yourself, you know that it has no irritating or inferior material in it.

Gooseberries.—I have preserved my gooseberries from mildew by mulching with coarse gravel, and applying water freely. One kind, on which I had never tried the experiment and which I had considered worthless on account of mildew, I mulched with gravel this year, and obtained perfect fruit, free from mildew.—H., *Ft. Wayne, Ind.*

Preserved Pumpkin.—Cut a good pumpkin in strips like citron; sprinkle sugar on them over night, pound for pound, and the juice of four lemons in the morning; boil the peel and a little ginger root, and add to the syrup. Boil the pumpkin till tender, then turn on the syrup boiling hot.

The Yorkshire Agricultural Society rivals the National Exhibitions as to the extent of its shows both as regards implements and stock. The population of the shire is stated at 2,000,000, and includes several of the most celebrated breeders of all descriptions of stock from the thorough-bred horse to the small pig. This year, with a prize list amounting to nearly £1,000, the number of competitors was unusually large.

Knowledge directs practice yet practice increases knowledge.

PRICES OF FANCY BEASTS AND BIRDS.

The New-York *Tribune* furnishes the following table of "fancy prices for fancy beasts and birds," which we transfer to our pages because we are frequently inquired of as to these things. Many of them are readily obtained in the New-York markets, whilst others are only to be had of breeders and dealers in various parts of the country.

Bremen Geese, per pair	$ 12
Poland and Chinese Geese	10
Wild Geese	12
Aylesbury Ducks	8
Rorica Ducks	8
Wild Ducks	6–8
Top Knot	4
Black Swan, each	75
White Swan, each	40
Cranes and Crown Birds	35
Pellicans and Storks	30–45
Golden Hamb. Fowls, per pair	10
Silver Hamb. Fowls, "	8
Black Spanish Fowls, "	12
Cochin Fowls, "	4–5
Shanghae Fowls, "	3–4
Speckled Dorking Fowls, "	12
White Dorking Fowls, "	8
Game Dorking Fowls, "	10
Poland Fowls, "	4
White Bantams, "	3
Black Bantams, "	5
Seabright Bantams, "	6
Japanese Fowls, "	8
Golden Pheasants, "	30
Silver Pheasants, "	20
Shetland Ponies, each	25–75
Setter Dogs (broke), each	30–60
Pointer Dogs, "	20–50
Newfoundland Dogs, "	10–50
Scotch Terriers, each	$ 5–25
English Terriers, "	10–30
Spaniels, "	10–25
King Charles Spaniels "	15–50
Fox and Rabbit Hounds, each	10–30
Tigers and Leopards, each	50–75
Bears, each	25–50
Wild Cats, Hyenas and Congars, each	20–40
Ferrets and Monkeys, each	10–25
Badgers, Coons and Squirrels, each	5–10
Canaries (common), each	3–4
Canaries (long breed), males, each	4–5
Canaries (long breed), females, each	1.50–3
Canaries (German), males, each	5
Sparrows, each	1–2
Mocking Birds, each	10–15
Goldfinch, "	3–5
Blue Jays, "	2–3
Bulfinch, "	10–12
Robins (singing), "	3–5
Parrots (talking), "	5–15
Quails (domestic), "	2
Doves, "	2–5
Pouter Pigeons, "	3–5
Fantails, "	2–4
Carriers, "	8
Roughs, "	2–4
Tumblers, "	4
Blackbirds (sing'g) "	2
Bobolinks, "	3

It has for some time been proposed to construct vessels of zinc. A zinc vessel, while it is hardly inferior in strength to one of iron, it is said to possess many advantages over the latter. It will cause no deviation of the compass; the plates not being liable to corrode or rust, do not require painting; in ordinary cases of collision, while iron would, in all probability, crack or break, causing a leakage in the vessel, zinc would yield and bend without endangering the safety of the vessel and hands, or interrupting her course.

Cure for Colic in Horses.—3 ounces spirits of turpentine, 1 oz. tincture of opium. If relief is not obtained in one hour, repeat the dose with one ounce of best powdered aloes well dissolved together.

Human Longevity in America.—From Professor Tucker's analysis of the American Census, from 1790 to 1840, published a year ago, we derive the strange result, if true, that the chances of living to above 100 years are 13 times as great among the slaves, and 40 times as great in the free negroes as in the white population of the country.—*Edinburgh Review.*

Agricultural Suicides—Was it an ordinary event in the days of Elizabeth for farmers who had hoarded corn, to hang themselves because the season in which they had expected to realize their profits, was one of plentiful crops? One would think so from the copious allusions to the practise in the works of fiction of the time:—

"Here's a farmer that hanged himself on the expectation of plenty."—*Macbeth*, Act ii. Sc. 3.
"And hang'd himself when corn grows cheap again."—Hall's *Satires*, Book iv. Satire 6.

Wind up your conduct like a watch every day, examining minutely whether you are "fast" or "slow."

In the State of South Carolina, the marriage laws are so stringent that not a single divorce, it is said, has ever been granted.

MAKING VINEGAR.

An exchange paper gives the following directions to a correspondent who says he has no luck in making vinegar:—

Cider in this country, malt liquors in England, and fermented grape juice in vine countries, are used for making vinegar. All these contain an abundance of organic matter, which induces fermentation: they absorb oxygen and give off hydrogen in the form of water. Hence, unlike the vinous fermentation, the presence of air is essential. But it must not be too largely admitted, lest it carry off certain parts essential to success. A barrel or cask is most convenient, with the bung open and covered with gauze to exclude insects.

Vinegar may be made by exposing one part of brown sugar with seven parts of water, and a small quantity of yeast, in a cask with open bung hole, for some weeks to the action of the sun's rays. But this vinegar is not as good as made in some other ways, being more or less viscous.

An excellent mode is the following: Mix a gallon of molasses with a barrel of cider, warm it in a large kettle, then put the mixture in a barrel with a few sheets of brown paper. Keep it in a warm place with the bung open, through which a stick is inserted for stirring it, to break the scum and admit the air. The vinegar may be drawn as needed, and its place supplied by cider, which in its turn will be converted to vinegar.

MANUFACTURE OF SUGAR FROM THE SORGHO.

Messrs. Editors.—In answer to an inquiry in your paper of the 3d, as to the way to make sugar from Sorgho or cane, I should say that a pair of tinsmith's rollers would answer for a small quantity, or any other contrivance that would squeeze out the juice. A clean copper pan to boil it with. It will require a small quantity of lime-water to kill the acid—if too much, it would prevent crystalizing. The quantity can only be known to one unaccustomed to boiling by litmus paper. Whites of eggs to raise the scum. Boil as quick as possible.

When the juice becomes thick and clammy between the fingers, about half water and sugar, strain through thick flannel cloth, and if possible, filter through coarse bone black keeping the black covered as long as the syrup lasts, or letting it out at the bottom of filter no faster than put on top. Then boil until a string can be obtained between the thumb and finger, so strong that it breaks and turns up like a corkscrew. A very little beyond this, and it will be about four-fifths sugar and one water. It will then require a box of other vessel to grain or sugar it in. Stir it well with a flat stick, the sides into the middle, &c. A conical box to drain away the molasses; and if white sugar is required, a strong white syrup is to be poured on the top, to wash away the molasses.

This is as near a direction as I can give by writing. I have some growing. It is now about ten feet high, and just showing its seed, but I am afraid that I have it too thick to ripen.—Wm. Wateson. *Mich. Country Gentleman.*

Temperature of the Earth.—By experiments made during the last year by Professor Smith, at Edinburg, with a series of earth thermometers, imbedded in the earth at varying depths, it was proved that there was a gradually increasing heat of one degree, Fahrenheit, for every forty feet in depth, so that at less than two and a half miles, water would be at a boiling heat, and at less than one hundred miles depth all things must be in a state of fusion. This confirms numerous previous experiments.

Useful Recipe.—Wounds in cattle are quickly cured by washing several times a day with a mixture of the yolks of eggs and spirits of turpentine.

Equal is the government of heaven in allotting pleasures among men, and just is the everlasting that hath wedded happiness to virtue.

There is no such thing as forgetfulness in its true sense. A thousand incidents may, and will, interpose a veil between our present consciousness and the secret inscription on the mind; but alike, whether veiled or unveiled, inscription remains for evermore.

CARROTS RUNNING TO SEED.

MILLBROOK, Sept. 8, 1957.

DEAR SIR,—Would you be kind enough to inform me what is the reason of carrots which were sown this spring going to seed? A great deal of the carrot crop in this section of Canada has become useless in that way. I may state that I imported, from a very respectable house in England, last spring, a quantity of "field seeds," and among the rest carrot seed of different varieties. I heard of no complaints till within the last three weeks, when the farmers to whom I had sold came in one after another and told me the carrots were in a great measure going to seed. It seems confined to the *red* variety; still, in some places there are a few of the white. The root is from six inches to a foot in length, and about three quarters of an inch in diameter at the large end, and tapers off gradually to a point; is quite tough, and perfectly useless for food. Farmers generally blame the seed, and say it was bad. This I can scarcely think is the case, as in every instance it grew remarkably well, and looked as well as usual, till within about a month. Be kind enough to give me your opinion as to the reason, and you will confer a favor on

Your obedient servant, R. W. ERRETT.

Remarks.—We learn upon enquiry that nearly all the carrot seed imported from Great Britain last season proved imperfect, and in many cases exhibited its weakness in the manner represented by our correspondent. The fault rests chiefly with the seed. The seed imported from France has not exhibited this peculiar defect. Some of our best seedsmen in this vicinity knowing, or suspecting the evil, took care to mix seed imported from other countries with their English seed, aad thus averted the loss to their customers which would otherwise have occurred.

TOWNSHIP AND COUNTY FAIRS.

Several of these interesting Exhibitions followed closely upon the Provincial Show at Brantford. We had the pleasure of attending the Exhibition of the Fullerton, Logan, and Hibbert Society at Mitchell, in the County of Perth, on the 7th inst. The display was highly creditable to the new but thriving Townships which the Society represents. The young horses, sheep and cattle, as well as the domestic productions, afforded evidence of the beneficial operation of the Society. A large number of people, old and young, thronged the Village during the day. In the evening a meeting was held for discussion, and was well attended. Mitchell is a rising place; it is favourably located in the heart of a rich agricultural district, that, in a few years, will be second to none in the Province.

The writer attended the County Show at Stratford, on the 8th. The quality of the Exhibition spoke well for the enterprise of the farmers of Perth. Mr. McCulloch's bull, which took the 2d prize at Brantford, was on the ground. Sheep made an excellent show. The roots and dairy produce were also worthy of special praise. There was a large crowd of spectators, who evinced great interest in the proceedings. A meeting for conversation on agricultural topics was held in the afternoon, and a dinner was given to the Judges and guests in the evening. Both passed off agreeably, and, we believe, profitably. We have nowhere met more intelligent farmers, or those who display more zeal for improvement, than in the County of Perth. Agricultural Societies are there well supported, and agricultural papers extensively read.

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ROMAINE'S STEAM CULTIVATOR.

The *idea* of steam cultivation retains its hold of the English agriculutural mind. In the Western States also, where some of the largest farms in the world are to be found, the desire to harness the steam horse to the plough is so strongly felt, that large rewards have been offered for the discovery of a practical method. We cannot say that the want f a steam cultivator has been much felt, or is likely to be for some time to come, in Canada. Our small farms, our stumpy, stony, knolly, and in many cases, hilly fields, seem better suited to animal than to elemental power—to the slow but obedient ox, to the active and easily managed horse, rather than the heavy, complicated, dangerous (in unskilled hands) and expensive steam locomotive,—even admitting that it can be made to cultivate the soil successfully under favourable conditions. As a stationary power for general purposes, steam is unquestionably superior to any other yet known. Water may be cheaper where it can be had in sufficient quantity, but it is not so managable in this climate, and being confined to those spots where it exists naturally, is unadapted to a variety of purposes. But steam has never yet been successfully applied as a strictly portable power, except in the two cases of steamboats and railroads. The immense weight of the engine itself offers, apparently, an insuperable objection to the use of the steam power in the field, where it is required to move with its work. Boydell's engine, with its movable track, is the most successful attempt yet made to overcome this difficulty. We hear of its achievements in transporting heavy ordnance over marshy ground, and it would, therefore, seem, as a matter of science and fact, that this engine has solved the problem. But, that it will or can be made to supersede animal power in the field, under the ever-varying conditions which must be there encountered; that it will be able to compete with such power on the score of economy, has not yet been proved. We doubt if it will ever succeed in that contest. I. destined to triumph any where, it is evident that it will only be upon large and tolerably level farms, such as may be found in England and the Western States.

Our attention has been turned to this subject by the appearance in the London *Illustrated News,* of an engraving and brief description of Mr. Romaine's Steam Cultivator, as improved by Messrs. Crosskill, the celebrated Implement manufacturers. We copy the description and engraving, not because we have much faith in its success as a cultivator of the soil, especially in this county, but because it is alleged to be the invention of a Canadian, has made some noise in Europe, and has received aid and encouragement from the Canadian Government. It ought, therefore, to be a matter of interest to the people of this country. The following is the description which appears in the *News:*—

ROMAINE'S CULTIVATOR.

"Crosskill's Romaine steam cultivator differs from all others hitherto brought before the public, in entirely dispensing with ropes and in effecting its work without dragging ploughs or other implements. It is not a plough; it is a rotatory digging-machine. It consists of a fourteen horse locomotive machine, mounted on a pair of very high broad wheels, with a pair of small wheels on the principle of chair-castors in front, which are used only for steering; a fifth wheel on the near side, behind, is used for setting the depth of cultivation. The cultivating part of the machine consists of a hollow iron cylinder, six feet six inches in length and two feet six inches in diameter, armed with curved iron knives, or hoes or claws. As the machine travels very slowly over the land —about a mile an hour—the toothed cylinder, which projects several inches on each side

beyond the broad wheels, turns round and digs up the stiffest clay soil to the actual depth of from six to twelve inches, stirring the earth, of course, deeper than the points of the claws, and leaving the surface in a fine tilth. From the manner in which the cylinder is attached, and the angle at which the claws enter the ground, bricks, stones, and roots are either divided or thrown out of the soil, or passed over without injury to the machine. The cutters are of wrought iron; under ordinary circumstances they sharpen themselves; and, if broken, they can readily be replaced, as each is secured separately by bolts to the outside of the cylinder. The steering apparatus is very ingenious. The large wheels only are driven by the steam engine. When the machine has to be turned round, one large wheel is left stationary, and the other being driven while the front wheels are guided by the driver, the engine can be turned round in its own length.

"The first public trial of this machine in its present improved shape took place on the 11th September, near Beverley. 'It commenced operations at one end of a field of strong clay stubble, and traversed the entire length, transforming a breadth of 6½ feet into a perfect seed-bed, equal, as some said, to what could have been produced by twice ploughing and harrowing, or clod-crushing. On its arrival at the headland it turned round in less space than a plough with a pair of horses, and returned, leaving, after an hour's work, no vacant space except two small headlands, which could easily be finished when the rest of the work was completed.' It will be observed that the wheels never touch what has been once cultivated, and the cultivator perfectly obliterates the marks of the wheels. The strength of this machine lies in its slow motion and the great breadth it cultivates.

A flywheel it will be observed, is attached to the machine, and when stationary, with the cultivator thrown out of gear (which can be done in an instant,) it may be used for all the ordinary purposes of a portable agricultural steam-engine—to drive a thrashing machine, to grind corn, to pump water, &c.

Some enthusiastic writers in the Yorkshire papers suggest that the "Romaine" may also be used to supersede farm horses, and take corn to market; but we do not believe that the inventor or manufacturers have any such notions, which, in the opinion of the first engineers of the day experienced in attempts at road engines, are perfectly illusory. Horses are cheaper machines for traction on common roads than steam-engines—that was proved twenty years ago.

The machine now open to the examination of any agriculturist, and at work every week near Messrs. Crosskill's works, is the fourth that has been built, each being an improvement on the last. The idea of the machine occurred to Mr. Romaine in 1850. The first machine was built at Mr. Mechi's expense, 1853, and led that enthusiastic gentleman to write to the *Times* that "the doom of the plough was sealed;" the second was built in Canada, under the encouragement of Lord Elgin, who is fond of mechanics, and sent, at the expense of the Provincial Government, to the Great Exhibition of Paris in 1855, where the inventor, Mr. Romaine, was one of the Canadian Commissioners. This machine, like Mr. Mechi's was to be drawn by a pair of horses, the steam being employed turning the cultivator. In Paris Mr. W. Crosskill saw it, and thought so well of it, that he took it up, and the firm have spent two years and some thousand pounds in bringing it to its present state of efficiency. The third machine would not steer or travel until the wheel arrangements had been changed to the present form and proportions. The fourth machine is the subject of our illustration. The expense of working is estimated at 70c. to $1 an hour; the work done at from three-quarters to one acre an hour, according to the depth and consistence of the soil. By lengthening the cylinder a steam engine of the power now used can increase the work done without accelerating the speed."

All this sounds very plausible, and for Mr. Romaine's sake, we hope his machine may prove acceptable to English farmers. But there is a fundamental objection to the *mode* of cultivation which this machine undertakes to perform, which must prevent it from taking the place of the plough to any considerable extent. We pointed out this objection to Mr. Romaine before he took his machine to England,—it is this: his rotating claws may tear up, aerate, and comminute the soil, but they will not *invert it.* Now, the inverting of the soil, the turning *under* of the stubble, grass, and other vegetable growth of the surface, in order that by its decomposition

it may supply food to the next crop, is one of the necessities of cultivation, in this country at least, and we apprehend, cannot be dispensed with in England. It is evident from a glance at the *modus operandi* of this machine that a large portion, probably three-fourths, of the vegetable growth of the soil, including roots of plants, will be deposited at or near the surface; and so, its value as plant-food will be, in a great measure, lost. We do not see how this result can be prevented. If you throw up a feather and a guinea, the latter will most assuredly reach the ground first. If stubble, grass, &c., are torn up at the same time with sand and clay, the former being lighter will by the same law, descend less quickly than the heavier body, and will thus be found at the surface. Possibly this tendency might be partially remedied by covering the cylinder so that the earth in falling would carry down the lighter bodies with it. But as the machine is represented in the engraving, the objection we have mentioned must prevent it from superseding the plough. It will merely do, in a more perfect manner no doubt, what is now accomplished by the "Cultivator" in common use. All the difficulties we have hinted at, as standing in the way of a steam locomotive "off the track," will obstruct this machine. Its slow forward motion is a point in its favour, because the power of the engine will thus be used to great mechanical advantage. But we fear, nevertheless, that it will prove an expensive mode of cultivating the soil.

A word as to the origin of this invention. Mr. Romaine is probably the first to attempt the practical application of the revolving hook or "claw" to the soil. But the idea is not a new one. Previous to the year when, as Mr. R. says, the idea occured to him, a clever little book appeared in England under the title of "Talpa," or "Chronicles of a Clay Farm." In the concluding chapter the writer thus suggests the Talpa, or *claw* cultivator:—

"Again and again be it repeated, that it is not *ploughing*, neither is it *digging*, that we want. These are only *means*. What we want is the *end*: we care not for the process. Give me a SEED-BED: show me the soil *comminuted*, *aerated*, and *inverted*, six or eight inches deep, and I will not ask you *how it came so*. What does that matter? If you wanted your coffee ground for breakfast, to a certain fineness of texture, would you be very particular to ask whether the mill that crushed the fragrant berry had worked horizontal, vertical, alternate, elbow-crank, or by *circular* motion? If the farmer or gardener could only have his seed-bed made ready for him as fine as a new mole-heap, or to any other coarser texture, according as he wants it, do you think he would care whether the soil had been first cut into longitudinal strips plough fashion, or into spades cubes, spade-fashion, before it was finally granulated for his use? Surely the one is as indifferent as the other; and singularly enough, both offer problems far more difficult to the steam-engine (if anything can be called so,) than the performance at once of the *ultimate* and entire process without these preliminary forms at all.

Until steam power was discovered, this possibility did not exist. Wind and water being out of the question, there remained nothing for it—no *other* power that could be taken into the field—but men or horses. Ploughing or digging, then, were the indispensable preliminaries; there was no getting on without them; there were but preliminaries it is true, the former leaving everything, the latter a great deal (according as the work was done) to be accomplished afterwards to complete the cultivation. But it is not so now. Since the birth of the steam-engine—no such very long time ago, the whole elements of the question are altered. There exists *now* a portable power—not limited to horizontal action like the horse, nor to vertical action like a man using the spade or the hoe—which, if merely told *what to do*, will go and do it, merely dropping a hint into your ear that *circular* motion is its favourite.

But the willing giant stands idly panting and smoking; for nobody can agree to tell him what to do. One says 'go and *plough*!' another says 'go and *dig*!' each mistaking the means for the end, and trying to yoke this youngest born of human genius to the peddling routine of manual or equine capacity; out of the very perversity of backsightedness that clings to forms and modes which belonged to the *implements* not to the *task*—backsightedness that would with equal reason puzzle its brains in looking for the pole and splinter-bar of a locomotive, the pendulum of a watch, or the paddle boxes of a screw steamer.

But if it is not ploughing, and it is not digging, what is it? 'Go to the Mole, thou dullard,' (the old proverb might be travestied,) 'consider her *ways* and be wise'—who without any coulter, share, or mould-board, without spade, hoe, or pickaxe, leaves behind her in her rapid track a finer mould than ever Ransome, Howard, or Crosskill—than ever spade or rake produced, or the most careful-handed gardener chopped up to pot his plants with. The very rabbit that scratches his hole in the ground, or the fox that scratches after him—like the king-crab, to *eat the kernel and lie in the shell*—or the dog that scratches after both—the whole tribe of 'claw foot," in fact—had scratched hard earth into soft mould, before ever the plough or the spade, or even the more ancient hoe, had broken ground on this planet.

Let us begin from the beginning: let us take 'cultivation' itself into serious thought for a serious moment, and analyze it into its simplest elements, dropping all conventionalities of plodding custom. What is it? How would you do it, if you had neither plough, nor spade, nor hoe nor, rake to help you? With the same tools that the monks of La Trappe used to dig their graves with, and in the same manner! If the mole, the rabbit, the fox, the dog, are not sufficient indicators, take the hand of a man, glove it with hardened steel, multiply it a dozen or twenty times, till you have an instrument as broad a Crosskill's clod-crusher, each hand or claw with its separate arm forming the radius from a central shaft, which bristles all around with a forest of such arms, a sort of revolving Briareus, *not rolling*—let that be especially remarked—but steam-driven, a thousand *dog* power, if you please, for we must not even mention horses, or we shall drop back into the old Scylla and Charybdis of 'traction' and of 'rolling,'—two ideas to be eschewed like poison.

Let us suppose the picture of this formidable looking cylinder of claws to be sufficiently described for the moment—reminding one, at a distant view, of a half-breed between a hay-tedding machine and a Crosskill's clod-crusher—but unlike them, fundamentally distinct from any and every instrument that was ever seen a field, as doing its work not by traction, nor by its rolling weight, but *driven* by its axis, as the steam-paddle, the circular saw, the driving wheel of the locomotive, are driven, supported by its own apparatus, and abrading the soil with its armed teeth, first cutting its own trench, burying itself to the required depth, and then commencing its onward task, *tearing down the bank* (so to speak) on the advancing side, canting back the abraded soil, earth's *sawdust*, 'comminuted, aerated, and *inverted*, into the trench it leaves behind.

When Mr. Romaine first attempted to carry his "idea" into practice, he adopted the singular expedient of placing a steam-engine in a cart to work the "formidable looking cylinder of claws," while the cart and the engine were to be moved about the field by means of horse-power! This arrangement was evidently an absurd one; but we find a passage in "Talpa," which *might* have suggested this idea also. He says:—

When we have in idea and in fact detached the *work of cultivation* from the mere progression of the implement, made them perfectly *separate* and *independent*, so that if you ceased to proceed, your 'coffee mill' would be still *at work*, and only wanting fresh coffee to grind; then, and only then, shall we have laid hold of the end of the 'clue that leads to cultivation by steam;' for then, and only then, shall we have begun to appreciate the real and unique value of the new agent we possess. To suppose that it would gear its noble faculty to the dragging of ploughs, or the redoubled solecism of a rolling spade machine, is to transgress the elementary axioms of natural law, the fundamental relations and *exactions* that govern all physical progress and discovery.

Talpa never meant to recommend any other power than steam for the two pur-

poses; he merely desired to have the two parts of the machine so adjusted that they could be put in motion independently of each other.

In the next chapter to that from which we have made the above quotations, we meet with the following graphic description of the very machine, in all its essential details, just brought out by Messrs. Crosskill. It is, we believe, a rule of law, that no patent will be upheld for any machine previously "described in a book." If Mr. Romaine has never read "Talpa," we advise him to read it now. It might save him both trouble and expense, if he contemplates a patent:—

"Before we depart this life, we shall see one more wonder moving on the face of the earth, something of this form and fashion—to wit—a complete locomotive engine on four wheels, the front pair turning on a transome, the hind ones fixed; behind them (suspended) a transverse, cylindrical shaft, three feet in diameter, from six to eight feet long, reminding one of a cross-breed between a clod-crusher and a hay-tedding machine, armed with case hardened steel tine points, in shape like a mole's claw, arranged so that the side lap of each claw may cover the work of the other, and no interval or ridge be left uncut: the extremities of the cylinder just covering the wheel tracks. This cylinder of claws you will see raised or depressed at pleasure by the engine driver, and adjusted to slow or rapid revolutions, worked either by cog wheels, or geared from the drum of the engine. That is the 'cultivator.' A platform from the engine extends over it, ending in a sort of moveable tail-board, which may be raised or depressed at pleasure, to regulate the settlement of the soil which scatters from it. The revolution of the cylinder is not *against* but *with* that of the wheels—not dragging or retarding, but rather helping the advance of the whole machine, which is moved slowly forward by a detached force of about two horse-power from the engine."

Energy of the British War Department,—*The London Times*, in stating the preparations, made for the re-conquest of her Indian empire, thus effectually groups the results of what has been done within three months:

It takes a long time to rise to the scale of a grand operation. We are a long time about it, and a still longer time knowing what we are about. By successive efforts of intelligence and resolution, we are at last sending out a great expedition to India; and most of our readers will have to open their eyes, and look around, and sum up, and compare, before they can appreciate the magnitude of the work and its place in the world's history.—Let them imagine themselves, then, on the beach of the South sea last Saturday afternoon. They would there see two immense clipper ships, each as large again as the largest ship in Nelson's fleet, towed from their anchorage by immense steam-tugs, and each with a thousand men on board, of whom near nine hundred were soldiers for the re-conquest of our Indian empire. Instead of two such ships, objects of admiration even to those who see three-deckers every day, let us suppose forty, most of them filled with men, a few with materials of war, and then you have an Armada which combines in one the adventurous spirit of early days, the vast idea of modern times, the hardihood of a rude age and the science of a civilized one. The joint expedition of England and France to the Crimea surpassed everything in ancient or modern times, including even the vast struggles of the latter power at the close of the great war. But even that must yield in turn to the grander fact of an army of 30,000 well-trained soldiers, well found, well officered, despatched in the course of three months from England right across the globe, to re-assert our authority on the shores of the Ganges and the central plains of Hindostan.

Over-reaching Horses.—A writer in the *N. E. Farmer*, who is a blacksmith, cures over-reaching horses, and increases their trotting speed fifteen or twenty seconds per mile, by the following mode of shoeing which increases the motion of the forward feet and retains the motion of the hind ones. He makes the toe-caulks very low, standing a little under, and the shoes set as far backward as convenient, on the forward feet, with high heel-caulks, so as to let them roll over as soon as possible. On the hind feet, the heel-caulk is low and the toe-caulk high and projecting forward. Horses shod thus, travel clean, with no click.

FRUIT GROWERS' SOCIETY OF WESTERN N. Y.

The following condensed details of the meeting of the Fruit Growers' Society of Western New York, recently held at Rochester, N. Y., is from the *Country Gentleman*:—

"The annual meeting of this society was briefly noticed last week. We now give a condensed account of the proceedings, embracing the more interesting facts stated in the discussion.

Leaf Blight and Cracking in the Pear.—Members generally had found these two maladies to go together, but not invariably. The leaf-blight more frequently attacked young plants in the seed bed—and sometimes larger orchard trees. When on bearing trees, it always produced cracking; but the fruit was often known to crack while the trees were unaffected with leaf-blight, and in the thriftiest state of growth. L. E. Berkmans, formerly of Belgium, informed the meeting that the leaf-blight was unknown there, while cracking of the fruit was frequent; but twenty days in a summer without rain, would be called a dry one. Other members had observed cracking caused exclusively by wet weather.

Cracking seemed in many cases to depend on the soil, and an instance was mentioned where trees of the Virgalieu, on the grounds of T. G. Yeomans, of Wayne County, where the fruit of this variety is always ruined by cracking, were removed to the grounds of a neighbour, and afterwards bore fair and excellent fruit. The disease could not be caused by *exhaustion* of the soil, several instances being mentioned where it had occurred on young trees, on new soil, and in the one case, out of nine or ten, was the only one affected.

As it had been found that young seedlings once affected, were more apt to be troubled with leaf-blight the following year, the opinion was entertained that it was a very small fungus, whose extremely minute seeds were carried through the sap pores to all parts of the plant, and were ready to germinate and develope themselves whenever the wet weather favored their growth on the surface of the leaves. It had been proved that the seed of the little fungus that produces rust in wheat, were carried from the grain or seed, up the stalk in the sap—these seeds being immeasurably smaller than the pores; and it was in accordance with analogy to suppose that the leaf-blight was similarly propagated.

Among the sorts of pears not liable to crack, were named the Ananas d'Ete, Flemish Beauty, Beaurre d'Amalis, Bartlett, and others.

Trees on New Soil.—The question was discussed at some length, whether trees grown on soils which had been previously occupied with trees, and enriched by manuring was as good as those on new soils, or those previously occupied by farm crops merely. The members generally had found a second crop of nursery trees from the same land, inferior to the first, even with considerable manuring, unless some years of 'rest' intervened—which period appeared to vary with the natural strength of the soil from two to eight years. Rotation in tree crops was found important, as well as in farming; for example, it was stated by T. C. Maxwell, of Geneva, that he grew a block of cherry seedlings on land, one-half of which was previously used for dwarf pears, and the other half for cherries. The cherries, after the cherries, were only one-half as large as after dwarf pears. He had grown fine cherries after a crop of peach trees. Some of the members, and especially P. Barry, thought that trees raised on manured old ground were not so healthy as those on new soil, the latter affording fibrous roots in abundance, while on old soils, made rich with manure, the roots are thick, forky, and few in number.

Dwarf Pears for Orchard Culture.—Many interesting statements were made on this subject.—Several very striking proofs were furnished of the profits of dwarf orchards. T. G. Yeomans, of Walworth, Wayne County, had large plantations of dwarf trees. They were eight feet apart each way, and were cultivated by two horses walking abreast quite as perfectly as could be done in a garden by hand, and at a less expense than corn and potatoes. His trees are about eight years old. His Angoulemes bear now about a bushel per tree, and sell readily for fifteen dollars per barrel. Many of the pears weigh about a pound. A member stated that he had that very morning measured and estimated half an acre of dwarf Virgalieus on Ellwanger & Barry's grounds, and found that 120 bushels per acre would be below the actual product this unfavourable year, the price being $3 per bushel. The trees are but six years from the bud. Last year the crop was about the same—the year before, or when but four years from the bud, they yielded at the rate of $500 per acre. They had a row of Louse Bonne of Jersey, eight years old, that at the

same rate per acre, would yield 500 bushels, and they readily sell at $3 per bushel. The cultivation is not more costly than that of a cornfield.

W. P. Townsend, of Lockport, who had much experience, made the following statement on this subject:—Seven years since he commenced raising trees. A quantity of quince stock were imported and set in the usual manner—in nursery rows, and budded with pears. At the age of one year, one-half of the year trees were dug out. He then determined to leave the balance in such a manner that the ground might be occupied by a pear orchard, which was done by removing two rows and leaving one, which made the distance ten feet between the rows. The rows thus left were thinned out so that they stood three or four feet apart. At the distance of 20 feet in each alternate row, a standard pear tree was planted, so that the ground was cut up into squares of ten feet, which I think is the proper distance for a dwarf and standard pear orchard. The dwarf trees on this plot are now five years from the bud. The land occupied by these trees is about one acre. The product this year, 11 barrels, Bartlett's, sold for $10 per barrel, and by estimate the balance of the crop will be 30 barrels, which is sold at the same price. These same trees in 1855 yielded 18 barrels; in 1856 but a small crop. The varieties, Bartlett, White Doyenne, Le Cures, Louise Bonne de Jersey and Duchess de Angouleme, with a number of varieties planted as specimen trees. Mr. T. has had not the least doubt but the culture of years upon quinces could be made very profitable. But the planter of dwarf trees could not expect a return without at least giving his trees a good tillage as he does his potatoe field; and the course taken by most planters has been quite the contrary, which has in a great measure been the cause of the prejudice against the planting of the pear on the quince. There is not the least question but the planting of trees and their cultivation can be profitably made to replace the loss of the wheat crop; nor is there any cause to fear over production, so long as the western portion of our land is open to us as a market.

It was generally conceded that the cause of failure in dwarf pear culture was owing to a bad selection of sorts, and to the almost universal neglect of cultivation, planters generally not giving their trees any thing like the attention they do their common farm crops.

The proper depth for planting dwarfs was discussed at some length, and it was the general opinion that it was best to have the point of union about even with the surface of the ground. If much deeper, the pear would throw out roots, which experience had always shown, made bad trees; the roots being few and one-sided, the trees grow obliquely. Bending the newly formed roots around the tree, partially obviates this difficulty. If the quince is above ground, the borer is apt to attack it.

Best Form for the Standard Pear.—The general opinion was, there should not be a tall, naked stem, liable to injury by exposure to the sun's rays. Some members preferred a short trunk, some 2 feet high, others would allow the branches down to the ground. The objection that low branches prevented cultivation, was shown to be erroneous, by the fact that the great mass of the roots extended far beyond the spread of the limbs.

The best Age for Nursery Trees.—Many striking facts were stated showing that the common eagerness for very large trees to set out for orchards was a very mistaken one—two or three years from the graft of bud, being as old as was profitable in any case. In many cases, large and small trees had been set out side by side, and in three or four years the small ones had always outstripped the others.

Raspberries and Blackberries.—The following interesting facts were given by different cultivators present:—

Charles Downing said that the variety known as the Hudson River Antwerp was the only sort cultivated largely for the New York market. The product was from $300 to $800 per acre. Sold at wholesale at 10 cents a basket, and three baskets made a quart.

H. E. Hooker, at 10 cents a quart, found the yield here to be about $140 per acre. Had taken a correct account of one bed containing 16 rods—one tenth of an acre, and containing 146 hills, four feet apart each way. The product was 200 quarts which at 12½ cents per quart would be $25. Charging the cost of picking and marketing, manure and cultivation, and costs of plants, use of land, &c., at fair prices, there was left a clear profit of fourteen dollars and eight cents on this small piece of land.

C. L. Hoag, of Lockport, sold over one hundred quarts this season at 16 cents. Brinckle's Orange is not only the best fruit, but bears altogether the best crop. He did not think it firm enough to bear carriage a great distance. The plant is hardy, though he found that when covered in winter a better crop is produced, and finer. The Hudson River Antwerp, killed back, unless covered.

Nathaniel Draper, of Rochester, had grown the Red and Yellow Antwerp on the same soil for twenty-five years. Used no manure during the time, but kept the weeds down and the canes tied to stakes. Never lost a crop, but plants taken from his beds and planted in highly manured soils have proved barren. Others had observed that high manuring had resulted in strong growth and unproductiveness. P. Barry thought that raspberries might be raised for six cents a quart at a good profit.

The following remarks on the management of the Blackberry were made by C. P. Bissell, who has many thousand plants under cultivation:—The young plants should have good roots. The first season the branches spread on the ground, the second and third year throw up strong shoots. Should be planted in rows some eight feet apart, and about the same distance in the rows. For training, the best way is to set posts and run two wires from post to post, to which the bearing canes should be tied. In the spring cut the canes back to about five feet, and also shorten the laterals to five or six buds, or they become so heavy with the weight of fruit as to break from the cane. The blackberry fills a vacancy between raspberries and peaches. Had picked over 400 berries from one plant. After bearing is over, the canes may be united from the wires and allowed to fall by their own weight. When fully ripe, the fruit was good, but persons often picked it before ripe.

P. Barry thought the high Bush or Dorchester Blackberry better and more valuable than the New Rochelle. Charles Downing thought the former the best flavored, but it was not so large nor so productive as the New Rochelle. The Newman was sweeter than either, but not very productive.

It was resolved unanimously to adopt the name *New Rochelle* for the variety known by this appellation, instead of *Lawton*.

Select Lists of Market Fruits. A very valuable result was obtained, by each member preparing in the form of a ballot, a list of the 12 best pears, 12 best apples, and 6 best peaches, exclusively for marketing. Twenty-one votes were given, and the following list shows the number received for each—omitting all those that received but one vote. There were fewer ballots given for the peaches:—

Pears.

Bartlett	19	Theodore Van Mons	4
Louise Bonne de Jersey	18	Glout Morceau.	3
Duchess de Angouleme	18	Beurre Superfin	3
White Doyenne	17	Urbaniste	3
Easter Beurre	16	Bloodgood	3
Lawrence	16	Brandywine	3
Seckel	12	Buerre Giffard	3
Vicar of Wakefield	13	Beurre Clairgeau	2
Flemish Beauty	11	Beurre Rose	2
Beurre de Anjou	9	Onondaga	2
Beurre Diel	8	Rostiezer	2
Tyson	8	Stevens' Genesee	2
Sheldon	6	Osband's Summer	2
Buffum	5	Ananas d' Ete	2
Belle Lucrative	5		

Apples.

R. I. Greening	19	Golden Sweet	6
Baldwin	18	Gravenstein	6
Roxbury Russett	17	Golden Russett	4
Red Astrachan	14	Yellow Bellflower	4
King of Tompkins Co	13	Swaar	3
Talman Sweet	13	Joathan	3
Northern Spy	12	Rambo	3
Esopus Spitzenburg	12	Seek-no-Further	3
Fall Pippin	9	Duchess of Oldenburgh	2
Sweet Bough	8	Peck's pleasant	2
Primate	7	Porter	2
Cayuga Red Streak	7	American Summer Pearmain	2
Early Harvest	6	Vandevere	2

Peaches.

Crawford's Early	15	Old Mixon Cling	2
Crawford's Late	13	George 4th	2
Old Mixon Free	10	Early Purple	2
Early York	9	White Imperial	2
Morris White	5	Red Cheek Melocoton	2
Cooledge's Favorite	4	Smock's Freestone	5
Large Early York	4	Walter's Early	2
Honest John	3		

PREPARATION OF SOIL.

In the cultivation of the garden, as of the farm, the first thing is to select the locality for a particular crop, or for a permanent object, as that of a garden, for instance, and to prepare the soil.

After all the divisions of soils that have been made, they may for all practical purposes be reduced to three, *sandy*, *clayey*, and *loamy*, in the first of which *sand* predominates, and in the second *clay*, while in the third sand and clay are happily blended in about those proportions which render them desirable to the cultivator.

A loamy soil is to be preferred for gardening purposes. Choose such a soil if you have it on your farm, and in a location suitable for the garden. But remember that the garden is a part of the homestead; it is to be beautiful as well as profitable; its elegancies and luxuries are to be on hand and not afar off; it is to adorn your dwelling, as your dwelling is to adorn it; is to be the rendezvous for many a social enjoyment, earlier in the morning than you go to the broad field, and later in the evening than you return from its weary labours.

If, then, your buildings are already erected, or even if the ground for them is chosen, you have no great range for the choice of a "garden spot." If the soil, where as a matter of taste and convenience you want to meet your wife and children and friends, among flowers and fruits and esculents, is not a feasible loam with a porous subsoil, one that will stand the drouth and drink in excessive rains so readily as not to to keep the surface long flooded, you must make it such. The expense will be considerable, but it will pay, and you cannot enjoy the pleasures and profits without.

An expense may be necessary which might well alarm you, if it were to be applied to your whole farm. But what is it for an acre, or half an acre? Nothing compared with the substantial benefits promised, to say nothing of the exquisite pleasure. If the soil is so exceedingly refractory that it cannot be made deep and mellow and rich, without a very great expense, it might be well to content yourself with a smaller garden than you would otherwise cultivate, though as a general rule we believe the gardens of our country are too small, and should be enlarged rather than diminished. If the mechanic or the professional man has but the sixth-tenth of an acre, it is worth a great deal, and we would advise him to make the most of it. But why should not the farmer, who has land enough, take a generous piece for a garden? Of all that the garden produces, there is scarcely an item which he can not dispose of advantageously, if he have a surplus, either by sale, or by giving it away, or feeding it to stock. An acre is perhaps better than more, because if the enclosure is too large, it may fail of getting cultivated so well as to be ornamental and highly productive; and half an acre is certainly better than less, because the person who but half appreciates the economical and ornamental value of a garden cannot do all he would desire on less ground. An acre, with fruit borders occupying one-half, and leaving an oblong or square half acre for the garden proper, would be to our mind, and that whether the farm of which it were a part were thirty acres or three hundred.

If your soil is a medium loam, and has a porous subsoil, you have nothing to do in the way of preparing the soil but to plough ten or fifteen inches deep, harrow, grade, plough again, and work in a plenty of good barn manure, so incorporating it with the soil that it shall pervade every inch, and you are ready to set your trees and make your garden. But suppose it to be a stiff instead of a medium loam, a few loads of sand in addition to

the manure will effect the requisite amendment. Or if it is a light sandy loam, then a few loads of clay will make it just what you want. And the cost in either case will hardly be worth naming. If instead of being a loam, a little too stiff or rather too light, it is a sandy soil, then clay in addition to manure is all you want to make it just what you would have it. The more sandy the more clay will be required. Or if your soil is the stiffest clay, sand enough with manure will make it as good a loam as you can desire. Where clay is used as an amendment, it should alway be exposed to the frosts of winter before ploughing in, and should be thoroughly incorporated with the soil; and even when sand is used the soil should be ploughed more than once, harrowed many times, and the new ingredient evenly mixed. And where sand or clay, as one or the other may be required, can not be obtained within a reasonable distance, swamp mud, long out and well warmed in the sun, and washed with rains, will go far towards producing the same amendments—will readily produce, only less permanently, both the effect of clay on sand, and of sand on clay, rendering a compact soil lighter, and a light soil more compact. The The difference is that this application would need to be repeated every few years, whereas the amendment of a soil by applying its opposite, is a permanent amendment.

The above is all on the supposition that the subsoil is porous, such that water passes downward freely, neither floods the surface, nor stops and becomes stagnant one, two, nor even three feet below. If there is any doubt about this, dig holes, like post holes, one, two, three, and three and a half feet deep, and if water stands more than a very few minutes in them after even the hardest shower, that ground requires draining, in order to be fit for a garden. You then have to preface your other amendments, whatever may be required, by underdraining. Of course, you would not have an open drain in your garden or anywhere near your house. A tidy farmer will hardly have them anywhere. Go to work then, and lay down the under-drains. For a garden where you expect to do a good deal of work, and would deem it bad economy to render your labour less satisfactory by any defect in the soil, the drains should be near each other. In some cases one very deep drain running through the centre, and side drains falling in from opposite directions, not quite as deep, and near to each other, would be advisable. But we all know that "water runs down hill," and the owner can decide where to lay his drains better than somebody a thousand miles off.

We will only add, that the autumn is the best time to prepare the ground for a garden. Winter even need not be lost, in case of large amounts of heavy earth to be drawn from a distance. How we wish that thousands of our farms, now showing only a little, stingy, miserable apology for a garden, not the most beautiful nor always the most productive spots on these farms, could show next spring, as the snow leaves them, grounds already prepared for gardens beautiful enough and fruitful enough to tempt the angels to come down and walk in them in the cool of the morning and evening.

Tree Guards.—In reply to an inquiry whether the rubbing of sheep is injurious to ornamental trees, I have observed that it has been injurious. I have a guard, which I adopted after trying many several years ago, and subsequent experience has confirmed its advantages. It is formed as follows:—Take stakes, such as are used for hurdles for sheep folds, drill holes through each, three or four inches from the top and bottom; then saw another stake across into two-inch lengths, and drill each in the direction of the growth thread the stakes and the short pieces alternately, as many as may be necessary to surround the stem of the tree, an a copper wire at each end, and close it round the stem and fasten the wire. This forms a secure cradle, very much resembling that put over a horse's neck to prevent his reaching to bite a blistered leg. Space must be left to admit of the growth of the stem for three or four years. The cradle lies loose around the tree, on the surface of the ground and never damages it; and it effectually prevents barking, for which some animals have a most inconvenient propensity. Three feet stakes are sufficient for sheep, and five feet for cattle.—*Gardener's Chronicle.*

Preserving Grain.—Grain to keep well should be perfecily ripe, and then be placed in a situation where it can remain cool and dry. It has been recommended when you have small quantities only to keep, a few barrels for instance, to put in dry bricks in different parts of the mass. These would absorb and retain any moisture that would be in their immediate neighborhood, not being liable to any action such as heating by any decomposition, and hence have a tendency to preserve the good condition of the grain in which they are placed. We have never seen the experiment tried, but the theory looks plausible. —*Exchange.*

FATTENING SWINE.

The propensity to acquire fat in many animals, seems to have been implanted by nature as a means of protecting them against certain vicissitudes to which they might be exposed. The first herbage of the season works off the impurities of the blood, and cleanses the system from unhealthy humors, renovating the constitution and the functions of the body, and enabling the animal to accumulate a store of strength to carry it forward in its destined course. The bear, and other hybernating animals, acquire an amount of fat by the close of autumn, which enables them to live through the long winter without the trouble of seeking food or eating it. True, it is rather a low degree of life—an oblivious sleep—but it is adapted to their nature, and consistent with their enjoyment. The deer also lays up a supply of fat against winter—smaller in amount, to be sure, than that of the bear, but sufficient with the food it can ordinarily procure, to carry on the economy of the system till the return of spring. It is so with the buffalo or bison; and our domestic cattle show that they were originally endowed with a similar propensity, which domestication has not obliterated.

In regard to the hog, if circumstances are favourable, he is inclined to lay up such a supply of fat during autumn, as would render it unnecessary for him to undergo such exercise or exposure during inclement weather. With plenty of *lard oil* to keep his lamp burning, he would prefer dozing in a bed of leaves in the forest while the ground is covered with snow, rather than to *grub* daily for a living. He fattens most rapidly in such a state of the atmosphere as is most congenial to his comfort—neither too hot nor too cold; hence the months of September and October are the best for making pork. The more agreeable the weather, the less is the amount of food required to supply the waste of life

Against fattening hogs so early in the season, it may be objected that Indian corn, the crop chiefly depended on for the purpose, is not matured. Taking everything into consideration, it may be better to begin to feed corn before it is ripe—or even at a stage of considerable greenness. After the plant has blossomed, it possesses a considerable degree of sweetness—hogs will chew it, swallow the juice, and nothing but the dry fibrous matter, which they eject from their mouths when no more sweetness can be extracted. They thrive on this folder, and will continue to eat it till the nutriment is concentrated in the ear, and then will eat the cob and grain together till the cob gets hard and dry. Farmers who have practised this mode of feeding, consider it more advantageous than to leave the whole crop to ripen, unless they have a supply of old corn to feed with. Even in the latter case, it is questionable whether hogs will not do better on corn somewhat greener than they would on hard corn, unground. True, it is not necessary that corn should be fed unground, but much is fed in this condition, no doubt at a loss.

In many parts of the country swine are fed considerably on articles which are not readily marketable—as imperfect fruits, vegetables, etc. Where such articles are used, cooking them is generally economical, A mixture of squashes (either summer or winter squashes,) pumpkins—the nearer ripe the better—potatoes, beets, and apples, boiled or steamed, and a fourth or an eighth of their bulk of meal stirred in while the mass is hot, forms a dish on which hogs will fatten fast. If skimmed milk or whey can be had, the cooked food may be put with it into a suitable tub or vat, and a slight degree of fermentation allowed to take place before the whole is fed out. The animals will eat it with avidity, and probably derive more benefit from it than if it had not been fermented. Articles which are of a perishable nature, should be used first in fattening swine, in order to prevent waste, and turn all the products of the farm to the best account.

Another quite important advantage of early feeding, is the less trouble in regard to cooking the food and keeping it in proper condition to feed out. The cooking may be done out of doors, if convenience of feeding would be promoted by it, and there is no expense or trouble to guard the food against freezing.—*Boston Cultivator*.

Car wheels are now constructed in two parts, for the purpose of providing against cracking in cooling, and of renewing the tread when worn out, without removing the hub from the axle. This is evidently good plan, provided the parts can be secured together with sufficient firmness and strength.

When the juice of the grape is exposed to a temperature of 70 degrees, its own temperature is raised, carbonic acid is given off, scum arises to the surface, a sediment subsides at the bottom, and the *must* is changed to wine. This is the simplest case of fermentation.

VARIOUS FACTS IN TILLAGE.

Depth of Sowing Wheat.—Wheat may be sowed too shallow as well as too deep. The depth must vary with the nature of the soil. A thinner covering is required in a close heavy soil, than in one light gravelly or sandy. The following experiments were made by Petri, the results of which would vary with the moisture or dryness of the soil. They are given as a specimen of trials of this kind, which if often repeated by farmers, would afford them much valuable information.

Seed sown to a depth of	Appeared above ground in	Number of plants that came up.
1-2 inch	11 days	7-8ths.
1 "	15 "	all.
2 "	18 "	7-8ths.
3 "	20 "	6-8ths.
4 "	21 "	1-2.
5 "	22 "	3-8ths.
6 "	23 "	1-8th.

Good Rotation.—A successful farmer, who has enriched his farm, while he has enriched himself from it, pursues the following course: First, he takes especial pains with manure, wastes none, saves all, mixes well in the yard, (not by forking over, but) by a proper distribution of straw, stable cleanings, &c. Next, he makes corn his leading crop, as affording both grain and folder, and as being all returned to the soil, in feeding all to animals, except what is sold in beef, pork, &c. The *first year*, the corn has all the manure in spring, at about 25 loads per acre. The *second year*, oats, barley, or spring wheat follows. In the autumn, sow winter wheat, which constitutes the *third year's* crop. This is seeded down to clover, which (being plastered) constitutes the *fourth* and *fifth year's* crop in meadow or pasture.

The Wheat Crop Improving.—John Johnston of Geneva, N. Y., is one of the best farmers in the country. He first of all underdrains; he then feeds his land well (with manure) and this enables his land to feed his large herds of animals; there manure feeds the land again; and both feed him and fill his pockets. He said, at the close of the year 1856, after all the unusual disasters which had happened to the wheat crop for some years previously, "*My own wheat crops for the last eight years, have averaged more than they ever did in the same length of time for thirty-five years.*" The reason he gives, he has sown *no wheat on undrained land*—added to the good farming described above.

Grass Lands.—No farmer should be satisfied with less than two tons of hay per acre from his meadows, and his pastures should be as good. There are several means of improving grass lands. If the land is wet, springy, or holds water in the subsoil, it should be drained. This may be easily determined by digging a hole two feet deep in spring of the year, and if underdraining is needed, water will stand in it. We have known meadows greatly improved by draining. Next in order, are manuring and deep ploughing for previous crops. Last, but not least, is heavy seeding. We have succeeded in doubling the product of grass, by quadrupling the seed—and this paid well. We have known five tons of hay per acre, by sowing a bushel of seed per acre.

Long and Short Manure.—One great objection to using fresh or unfermented manure, is the difficulty of working its long fibres into the soil, and *mixing it finely with the earth*, a most essential operatian. All these difficulties are surmounted, by cutting all the straw used for bedding. It need not be cut very short. If all the corn-stalks fed to cattle, were first cut finely with a machine driven by horse power, the animals would eat much more, and there would be none of that peculiarity unmanageable manure occasioned by large corn-stalks. A friend of ours cuts all his stalks with a four horse power—an hour's cutting lasting a long time—and finds great profit in it every way.

Value of Straw in Manures.—It is found by careful chemical examination, that different kinds of straw possess quite different values, to work up into manure. This relative value is very nearly determined by the quantity of nitrogen they contain. Barley straw is the poorest of all; oat and rye straws are about one-third better; wheat is nearly double in value to barley; buckwheat is rather better than wheat; meadow hay and corn-stalks are far a-head of any of these, being five times as rich in nitrogen as barley straw; and red clover hay and pea-straw are each about eight times as rich as barley. Whether these substances are mixed directly with manure, or eaten first by animal, they produce their relative effects.

Manure Enriched by Grain.—Nearly every farmer is aware that the food controls the quality of manure, and that, for instance, dung from horses fed high on oats is quite a different thing from the droppings of grass-fed horses. Some kinds of grain contain more nitrogen than others, and of course impart more fertilizing power to the manure. Barley is the poorest, Indian corn a little better, and oats better than either by about 20 per cent., the three not being very unlike.

Harrowing Inverted Sod.—Farmers often find harrowing inverted sod to tear up the turf, and make grassy tillage. The double Michigan plough is a perfect cure, but not always at hand, and sometimes it may not be advisable to use it. Grass land which has been inverted by the common plough late in autumn, and which has been underdrained or is otherwise dry enough, may be harrowed very early in the spring, without the least disturbance of the sod, if done when only a few inches of the surface has thawed, and while the grassy portion of the sod is chained fast by ice.

Garden Rotation,—The following enumeration of the different families of garden vegetables will enable the gardener to plan a rotation, so that similar plants will not occupy the same soil in successive years—those classed together should not succeed each other.

1. Peas, beans.
2. Cabbage, cauliflower, brocoli, turnip, raddish.
2. Carrot, parsnip, parsley, celery.
4. Potato, tomato, egg plant.
5. Cucumber, melon, gourd, squash.
6. Lettuce, salsify, endive, chicory.
7. Onion, garlic, shallot, lock.

AGRICULTURAL IMPLEMENTS.

(To the Editor of the Agriculturist.)

Perth, Co. Lanark, Oct. 17th, 1857.

Dear Sir,—Owing to the holding of our assizes I could not get to the Provincial Show at Brantford. We find this a *grievance* here every Fall. I do not know that this can be helped, though anxious that it should be. It keeps professional men who are favourable to Agricultural pursuits from participating in these annual gatherings, where located remotely as we are.

It appeared to me too, that confining the animals exhibited, in close apartments, and invisible as at Kingston, was an objection. This was in part remedied this year by the Procession of Prize animals The successful articles, if marked in some way as the Premium ones, to distinguish them, after the judges have decided; so that visitors could inspect them personally, at leisure, would be a gain to the public and to competitors.

I observe you were one of the judges on Agricultural Implements, and I am desirous of hearing your opinion (which might be published also in the *Agriculturist* as of use to others), as to the improvements made in Mowers and Reapers, which gave the premium to D. Atchison of Thornhill, over Messrs. R. & R. S. Patteson of Belleville, who took the prize last year. Also a description of the Field Cultivator of J. Netherington, Clarke. Do you recommend this as the best we can get, as I wish to procure one. Also the Horse Hoe, of John Watson, Ayr. Can you give particulars and prices? The same with regard to A. Carts' machine for cutting roots, and Wm. Crow's Seed Drill. Is this last a better article than Seymour's? Your reply will confer a favor on Yours, very truly,

W. O. BUELL.

Remarks.—The suggestion of Mr. Buell in regard to marking prize articles and animals, is one that ought to be attended to. We think, as the Exhibition is limited to three or four days, and many persons attend but one day, it would be a decided improvement if the Judges in all the departments were furnished with cards marked 1st prize, 2nd prize, 3rd prize, &c., before entering upon their examination; and as soon as they make their award, one of their number should attach the appropriate card to the prize animal or article. This would be gratifying to exhibitors, and interesting to the public. By deferring this until the Judge's books are returned to the Secretary, much time is lost, and room allowed for misrepresentations, and petty frauds.

The combined Reaper and Mower, to which the first prize was awarded at Brantford, was not exhibited at Kingston, It possesses two or three important features which in the opinion of a majority of the Judges rendered it worthy of the distinction awarded to it. The writer did not see it operate as a mower, being otherwise engaged, but the report of the committee was that it did its work equally well with the others. As a Reaper it performed well, and possessed this advantage over the others, that the delivery could be made at the side, or in the track of the machine. Another distinctive feature is, that *side draft* is completely obviated, and the weight of the tongue only, rests upon the horses' necks. A fourth point is, that the machine is made chiefly of iron, and the specimen exhibited, displayed excellent workmanship. For these reasons it was adjudged the first prize. But all the prize machines will do excellent work, and Mr. Buell can hardly mistake if he orders either of the three. We may observe that the difference of price, according to statements of exhibitors, was inconsiderable. The Cultivator to which the first prize was given, was well made, and iron throughout. In the writer's opinion it was rather a "grubber," than a cultivator, and ought to have been in a separate class. But a majority were of opinion that it would do precisely the same work as the cultivators with broader teeth, and it was allowed to stand in the class. The second and third prize implements were well made and will no doubt prove efficient. None of them were tried, an omission which we hope will not occur next year. There was very little competition in Horse Hoes. They were all admirable of their kind. The machine for cutting roots to which the first prize was given, was new to us, and operated remarkably well. We should like to procure one for our own use. The seed-drill was of ordinary construction; we saw nothing about it worthy of special commendation. There was no competition properly speaking.

We have now replied to all the queries of our correspondent, except as to prices. These were generally asked by the judges, but the answers were not perhaps always reliable. As few implement manufacturers advertize prices, we are equally in the dark with our readers.

Friction Matches should never be left where mice can get them—they have sometimes carried them in among their nests of shavings and papers, and slight causes have set them on fire and burned houses. A lady was nearly burnt to death, by the fire from a match which had been carelessley thrown on the floor, and which she fired by treading on it.

SAVING MANURE.

As the period of the year when farmers yard or stable their stock is approaching, it is all-important that proper measures should be taken to preserve intact all the elements of fertility usually to be found in the manure heap. It is indisputable that a large portion of the farming community do not collect so great an amount of nutriment to return to the soil as it is in their power to do; and it is also undeniable, that a still larger number do not pay the attention to what they do accumulate that they ought.

The value of manure depends, in a high degree, upon the ammoniacal properties it contains. As this salt has a great affinity for water, rains and moisture will soon carry it away, and after two or three leachings the pile is rendered almost worthless. In addition to ammonia, nearly all the other components of farm yard manure, as potash, soda, &c., are likewise soluble, and are readily removed by water. When manure is thus exposed for any length of time, nothing but insoluble material is left—that which is comparatively valueless is given to the soil with the vain expectation of promoting the elements of fertility.

Many experiments have been made for the purpose of testing the relative worth of manure properly cared for, and that exposed to the action of the weather. One of these, by Lord Kinnaird, under the auspices of the Royal Ag. Society, in which potatoes was the crop grown, the yield averaged upwards of four tons in favor of covered manure. Upon two acres of wheat—which was fed with manure that was cared for—the produce amounted to 108 bushels 52 pounds; while upon another two acres, treated with an equal amount of uncovered manure, the yield was but 83 bushels 57 pounds. In the growth of straw the produce was very marked—the first field produced 9,842 pounds, while the yield of the second was but 6,864 pounds.

Chemical analyses have also aided in giving light upon this subject. It has been substantially demonstrated that covered contained double the nitrogenized properties possessed by the unsheltered, and that while the latter contained only *eight-tenths* per cent. of potash and soda, the former had fully *two* per cent. The proof of this analysis is fully "worked out" in the growth of the straw in the experiments mentioned.

There are several things to which the farmer should give his attention in the care of the manure heap. Putrefaction, or decomposition, needs to be promoted; such absorbents as will prevent the dissipation of ammonia into the atmosphere ought to be employed; and the robbery, by leaching, of whatever sun and air have seen fit to leave prevented. To accomplish the first of these objects comparative dryness of situation is required. Dampness is a necessary element of decay, but we think all that is absolutely wanting for this purpose is contained by the voidings of cattle. Another requirement is the compactness of the heap. Heat is sooner generated where the manure is somewhat solid—the moisture is better preserved, and "fire-fanging," or burning, is not so much to be feared. The following mode practiced by Mr. Mechi, of Triptreehall, England, is considered the most perfect in use. The whole of his cattle, sheep and pigs are kept under cover, on sparred wooden flooring, which permits their droppings to fall through the openings into cellars or chambers beneath. To accomplish the end sought more effectually, the straw is all cut up into short lengths, and saturated with liquid oil cake, or linseed, and mixed with ground corn, and in this way his entire amount of straw is used solely as food, no bedding being required.

This system, when first brought into vogue, was assailed by many of the writers on agricultural subjects, and condemned in no measured terms, "as preposterous, expensive, unsatisfactory in its results, and contrary to the nature of animals so fed." The *Cyclopedia of English Agriculture*, in reply to the assertions, says: "These points must be decided not by theory, but by prolonged experience. With regard to the point which lies in the way of this article—the value of manure made by Mr. Mechi's plan—it appears a self-evident proposition, that the manure so obtained must, from the absence of anything like active fermentation, be superior to all other kinds derived from the ordinary modes pursued, just in proportion to the loss sustained from fermentation by one or the other of these." The great gain in value of manure thus made, is claimed upon the assumption that ammonia—the very base of enriching substances—is almost wholly retained, that the mode most effectually prevents the escape of this element of fertility.

In Belgium, according to Schwertz, manure is accumulated in the stables. The cattle are placed upon a kind of platform raised above the pavement of the stable, and the droppings being withdrawn from under them, are trodden down and allowed to accumulate upon the floor.

In Switzerland, BOUSSINGAULT says, the urine that is passed by the cattle flows along a gutter which communicates with a large reservoir containing water, in which not only the solid excrements diffused, but in which the litter is washed, this being changed twice a week. The reservoir is constructed under the floor of the cow-house itself, in order to be protected from the frost. The fermentation of a mass so diluted is scarcely preceptible, and, save from leakage, there is no loss of decomposing animal matter. The liquid manure is raised by means of a pump, and carried to the meadow in tubs placed upon carts.

All farmers recognize the virtue of such action as tends to preserve the value of manure, but there are large numbers who have not made such complete and efficient preparations as they might. The present season furnishes ample opportunities for the construction of manure sheds or such other receptacles as may be deemed expedient, and we hope that all who can will perform their whole duty in this respect.—*R. N. Yorker.*

ARCTIC VEGETATION.

Dr. Kane, in his account of his first cruise, gives the following description of the vegetation he found in a small cove, near the latitude of 70°:

Strange as it seemed, on the immediate level of snow and ice, the constant infiltrations, aided by solar reverberation, had made an Arctic garden-spot. The surface of the moss, owing, propably, to the extreme alterations of heat and cold, was divided into regular hexagons and other polyhedral figures, and scattered over these, nestling over the tufts, and forming little groups on their southern faces, was a quiet, unobstructive community of Alpine flowering plants. The weakness of inividual growth allowed no ambitious species to overpower its neighbor, so that many families were crowded together in a rich flower-bed. In a little space that I could cover with my pea jacket, the veined leaves of the Pyrola were peeping out among chickweeds saxifrages, the sorrel and Ranunculus. I even found a poor gentian stunted and reduced, but stiil, like every thing around it, in all the perfection of minature proportions.

As this mossy parterre approached the rocky walls that hemmed it in, tussocks of sedges and coarse grass began to show themselves, mixed with heaths and birches; and still further on, at the margin of a horseshoe, and fringing its union with the stupendous piles of debris, came an annulus of Arctic shrubs and trees,

Shrubs and trees! the words recall a smile, for they only typed those natives of another zone. The poor things had lost their uprightness, and learned to escape the elements by trailing along the rocks. Few rose above my shoes, and none above my ankles; yet shady alleys and heaven-pointing avenues could not be more impressive examples of creative adaption. Here I saw the bleaberry (*Vaccinium uligiosum*) in flower and in fruit—I could cover it with a wine-glass; the wild honey-suckle (*Azalea procumbens*) of our Pennsylvania woods—I could stick the entire plant in my button-hole; the *Andromeda tetragona*, like a green marabou leather.

Strangest amongst these transformations came the willows. One, the *Salix herbacea*, hardly larger than a trefoil clover; another, the *S. glanca*, [S. Uva-ursi], like a young althea, just bursting from its seed. A third, the *S. lanta* [S. arctica], a triton among these boreal minnows, looked like an nnfortunate garter-snake bound here and there by claw-like radicles, which, unable to penetrate the inhospitable soil, had spread themselves out upon the surface—traps for the broken lichens and fostering moss which formed its scanty mould.

I had several opportunities, while taking sextant elevations of the headlands, to measure the moss beds of this cove, both by sections where streams for the lake had left denuded faces, and by piercing through them with a pointed staff. These mosses formed an investing mould, built up layer upon layer, until it had attained a mean depth of five feet. At one place, near the sea line, it was seven feet; and even here the slow process of Arctic decomposition had not entirely destroyed the delicate radicles and stems. The fronds of the pioneering lichens were still recognizable, entangled among the rest.

Yet these little layers represented in their diminutive stratification the deposits of vegetable periods. I counted sixty-eight in the greatest section. Those chemical processes by which nature converts our autumal leaves into pabulum for future growths work slowly here.

THE TURKEY.—FATTENING.

One of the most useful and beautiful domestic birds is the Turkey. It ranks next in importance to the common fowl. What we could do, or how we could keep Thanksgiving or Christmas whithout the turkey, is a question we hope never to be forced to investigate. The Turkey is a native of North America, and Buffon says it was unknown before the discovery of America, and it has no name in the ancient languages. Its range is from the Isthmus of Darien on the south, to the fifteenth degree north; and east and west, the Atlantic Ocean and the Rocky Mountains. It has never been seen south of Panama, and is unknown, beyond Lake Superior. The Wild Turkey, is far more beautiful than the domesticated bird. The plumage of the Wild Turkey is generally described as being compact, glossy, with metallic reflections; feathers double, as in other gallinacious birds, generally oblong or truncated; tips of the feathers almost conceal the bronze color. The large quill coverts are of the same color as the back, but more bronzed with purple reflections. The lower part of the back and tail coverts are deep chestnut, bandedgreen and black; the tail feathers are of the same color, undulatingly barred and minutely sprinkled with black, and having a broad blackish bar toward the tip, which is pale brown and minutely mottled; the under parts duller; breast of the same color as the back, the terminating black band not so broad; sides dark-colored; abdomen and thighs brownish-grey; under tail coverts blackish, glossed with brown and the tips bright reddish-brown.

The plumage of the male is very brilliant; that of the female is not so beautiful. When strutting about, with tail spread, displaying himself this bird has a very stately and handsome appearance, and seems sensible of the admiration he excites. Dr. Bachman says, "that in a state of domestication the wild turkeys, though kept separate from tame individuals, lose the brilliancy of their plumage in the third generation, becoming plain brown, and having here and there white feathers intermixed."

At this season of the year, the subject of Fattening is of the greatest importance. Many of the birds brought to market are very poor, and a little attention to this matter for a few weeks, will increase the profits of the farmer and the pleasure of the consumer.

It is only when the cold comes, and turkeys are about six months old, that they should be fed with better and more plentiful food, in order to increase their size and plumpness for market. Indian corn, ground barley, wheat, also rice and other articles used to fatten common fowls, are considered best for turkeys. Their weight, when well fattened and carried to market, should average twelve pounds; their living and dead weight is as eighteen to twelve pounds.

Cobbett says, "As to fattening turkeys, the best way is never to let them get poor. Barley meal, mixed with skimmed milk, and given to them fresh, will make them fat in a short time. Boiled potatoes mixed with Indian meal, will furnish a change of sweet food which they relish much, and of which they should be allowed to eat as much as they can. As with others, the food of this bird must be kept clean, and the utmost care taken not to give them on the morrow the mixture of the preceding day; because if the weather is warm, it will sour, which might displease them."

Much has been published of late in our agricultural journals in relation to the alimentary properties of charcoal. It has been repeatedly asserted that domestic fowls may be fattened on it without any other food, and that too, in a shorter time than on the most nutritive grains. "I have recently made an experiment," says a writer for a Philadelphia paper, "and must say, that the result surprised me, as I had always been rather skeptical. Four turkeys were confined in a pen, and fed on meal, boiled potatoes, and oats. Four others, of the same brood, were also at the same time confined in another pen, and fed on the same articles, but with one pint of very finely pulverised charcoal, mixed with their food—mixed meal and boiled potatoes. They had also a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, and there was a difference of one and a half pounds each in favor of the fowls which had been supplied with the charcoal, they being much the fattest, and the meat greatly superior in point of tenderness and flavor."

Washing Clothes.—It would save a great deal of toothache, and ague, and chills, if every woman would rinse her clothes in water a little warm. When the teakettle is put on to boil water for starch, fill it full, and put some into the rinse water. White clothes look better if the boiling suds is blued, instead of the last rinse water.—*Cor. Ohio Culti'.*

TO FATTEN HORSES.

A horse should be fattened as speedly as possible, when you commence the process, as you lose money by being six months putting on what flesh can be made in six weeks.

When a horse is to be fattened, the first thing to be done is to put his stable in a clean condition, as no animal can fatten easily, while the affluvia of deleterious gases are being constantly breathed by him. Feed in such quantities as the animal will eat up clean, and at no time suffer his food to lie by him. If he be fed six times a day, instead of three, so much the better.

Potatoes will fatten some horses speedly, and loosen their hides. Carrots are also excellent with oats and corn, and if grouud, the grains are much more nutritious.

A little very good hay should be fed with the other feed, and always give plenty of pure soft water, when it can be easily obtained.

The curry-comb must be used freely, plenty of clean bedding supplied, and above all, see that a sufficient ventilation exists to make the air fresh and pure.

AN ILLINOIS FARM.

What will those persons who have been accustomed to consider five hundred acres a large farm, think of the following? The editor of the *Spirit of the Agricultural Press* has recently been on a visit to the farm of M. L. Sullivant, Esq., in the south-eastern part of Champaign county, Illinois. The farm contains over *twenty thousand acres*, and although only about seven thousand acres are yet under cultivation, employs over one hundred men! Three thousand acres are planted in corn, and the editor estimates that the farm will produce at least 15,000 bushels of wheat this year, besides large quantities of barley, oats, flax, &c. Mr. Sullivant employs five different reapers this season, and threshes immediately after cutting, employing a steam engine as his power in the latter operation. A blacksmith's shop is located on the farm, and employed continually in repairing farm implements; a school is kept up for the education of the children of the workmen. One hundred and twenty-five yoke of oxen and fifty horses are employed. It must be acknowledged that this is something of a farm, and that Mr. Sullivant possesses much executive ability to successfully manage such a stupendous concern; yet we are informed that every thing moves on as regular as the click of a chronometer.

Mr. Sullivant also farms it on a large scale near Columbus, in this State. He has lands enough in Franklinton and Franklin county, one would suppose, to satisfy most men; a considerable proportion, too, of the very fertile Scioto bottoms. Within the past three or four years he has been selling portions of his large tracts in Ohio and investing in prairie government lands in the West, mainly in Illinois. He has monopolized in the vicinity one hundred thousand acres of the great prairies in Central and Southern Illinois, every acre of which he considers intrinsically worth $20 for agricultural purposes, even for corn alone. He entered some forty thousand acres in one body, on which there was scarcely a stick of timber, and not a drop of running water. The big farm spoken of is on this tract. His tenants have to haul firewood about twelve miles. Water is obtained by digging at a reasonable depth, and supplies are furnished by windmill pumps. Mr. S. broke up a strip of prairie some two hundred miles in length to put out Osage Orange hedge for fencing, but gave up the experiment. He now uses posts and boards, and has planted hickories at proper distances for future posts. He expects that the thrifty young trees will become large enough to be used for posts as they stand by the time the first fence rots down, say a hundred years.

Last year Mr. Sullivant's Illinois farming operations were not very profitable. His immense corn fields were mainly planted on the newly turned prairie sod, and the season was so unfavorable that the harvest was very light. His lands he regards about as fertile and productive as the Scioto bottoms, and his crops this summer and autumn will largely swell the overflowing granaries of Egypt.—Mr. S. is quite moderate in his expectations. He does not hope to be a rich man himself, but thinks he may leave something for his children.—*Cleveland Herald.*

Improved Lime Kiln.—An improved lime kiln has been invented in Rockland, Me., by which the burning of lime goes on continously. In the old way, a kiln full is burned, cooled, and the lime taken away, then the kiln is filed up again, being in operation only half the time.

CAN WE AFFORD TO LIVE IN IT.

Occasionally some millionarie builds a mansion, which is the admiration of the town, or erects a country house, which, with its grounds, is the pride and boast of its neighbourhood. In time the great man dies, becomes insolvent, goes abroad, or tires of his hobby; and then the property is put up for sale. Everybody crowds to see the dwelling, or drives out to the country house. The pictures, the furniture, the hot-house or the grounds, by turns the theme of admiration. The night of the sale arrives. The aution room is crowded. To judge from the sea of faces looking up at the crier, one might think that the competition would be enormous. But the fact is the reverse. The auctioneer expatiates long before he can obtain a single offer; the property, at first, seems about to be knocked down to the first bidder; and when at last, other offers are made, they come almost reluctantly, and though the hammer falls amid a general cry "how cheap!" the purchaser looks as if he already half repented of his bargain.

And why? Simply because it is one thing to buy a costly house, but quite another thing to live in it. Men, before they purchase a stately mansion, should ask themselves whether they can afford to keep it in appropriate style. A hundred thousand dollars for a dwelling makes necessary thousands of dollars for furniture, thousands for dress and equipage, and thousands more for servants, parties, Newport and Saratoga. There is a fitness in things, demanded by public opinion, which requires these expenses, and to this opinion nine men out of ten sooner or later practically yield, even if they or their wives do not embark in the extravagance at once. But usually there is backwardness in this respect. Fitznoodle purchases a new house, with rosewood doors, walnut staircase, stained glass windows, and before he has fairly recorded his deed, Mrs. Fitznoodle wants the walls frescoed and panelled with satin, and ten thousand other superfluities. The estimated cost of the movement is soon trebled; the annual outlay grows in proportion; and Mr. Fitznoodle is either ruined, or condemned to groan, forever after, over his increasing expenses.

What is true of the would-be-fashionable, is just as true, however, of persons with more limited means. If men worth only a hundred thousand dollars or two, ape the millionare's style of living, so do young merchants, professional men, even clerks and mechanics, ape those richer than themselves.—The weakness of wishing to live in a fine house is almost universal. The fine house, too, is relative; for that which a millionare scorns, the young merchant thinks superb, and that which the merchant looks down on, the clerk pinches himself to obtain. It is amazing how many families live in dwellings beyond their means! The miserable shifts to which such families are driven in order to keep up appearances, are melancholy to think upon. In the end, too, the head of the family dies, having laid by nothing, and the widow and children sink into a hopeless poverty, the more poignant to them, because of the mortification attending it. It would be well if the question was often asked, when moving into a better home is proposed, "Can we afford to live in it?"—*Horticulturist.*

TO PREVENT GIRDLING OF TREES.

(From the new revised Edition of Downing's Fruit Trees of America.)

Great injury is done to young orchards in some districts by the *meadow mouse.* This little animal always works *under cover*, and therefore does its mischief in winter when the snow lies deeply upon the ground. A common and effectual mode of deterring it is that of treading down the snow firmly about the stem directly after every fall of snow. But this is a very troublesome affair.

The following mixture will be found to be an effectual prevention. Take one spadefull of hot slaked lime, one ditto of clean cow's dung, half ditto of soot, one handful of flowers of sulphur, mix the whole together with the addition of sufficient water to bring it to the consistency of thick paint. At the approach of winter paint the trunks of the trees sufficiently high to be beyond the reach of these vermin. Experience has proved that it does no injury to the tree. A dry day should be chosen for its application.

English nursery men are in the habit of protecting nurseries of small trees from the attacks of *rabbits*, simply by distributing through the squares of the nursery coarse matches made by dipping bunches of rags or bits of tow, in melted sulphur, and fastening these in split stakes a couple of feet high. The latter are stuck into the ground, among the trees, at from 12 to 20 feet apart, and are said completely to answer the purpose.

IRON versus HEMP.

Circumstances indicate that, in certain kind of steamers, iron will entirely supersede the use of wood as a building material.

Another use has been made of it to a limited extent, in its substitution for hemp, for standing rigging. Careful tests have been made recently in Liverpool, in which the superiority of iron seemed fully substantiated. These tests had special reference to the comparative strength of wire. and of hempen rope. The following are given as the sizes and materials of the samples subjected to the first experiment with the results:—3¾ inch galvanized wire rope, broke at 20 tons 15 cwt.; 3¾ inch Manilla hemp, ditto, 5 tons 17 cwt.; 3¾ inch Russian hemp, ditto, 4 tons 15 cwt.; 3¼ inch galvanized wire rope, ditto, 16 tons 10 cwt.; 2½ inch galvanized wire rope, ditto, 8 tons 10 cwt.

How far these results may be counterbalanced in the matter of convenience, it belongs to experience only to decide. The *Liverpool Post* says, in reference to the superior strength of iron as shown in the above experiment:—

"But from a table handed to us we perceive that this is not the sole, or indeed we might almost say the greatest, of the advantages it presents. For instance, we observe that wire rope is a fourth less in weight, and not one half the bulk of that made of the hemp of the relative strength and enduring capacity. The advantage of this, especially in beating to windward, needs no comment. Moreover, we are assured the cost is 25 per cent in favor of wire rope over hemp, estimating weight and saving. Again wire rigging is much less susceptible of atmospheric changes, the latter continually stretching. And when, in addition to all these advantages, it is remembered that wire rigging needs no stripping or refitting, as hemp rigging must have every few years, we can not but come to the conclusion that wire rope seems destined ere many years to surpass, if it shall not entirely supersede, hemp rope in ships' standing rigging. Already, indeed, we see that for years it has been creeping into more general use; and if the approval of experience can add, as it must, to the value of scientific tests, the use of it will be even more than proportionately rapid, for those who have used it invariably prefer it over hemp.

PUDDINGS BY THE WHOLESALE.

Here is a rule for building a dozen puddings or more on one foundation. What an idea! It may be a good one, however. Let the ladies look at it and see:

Baked Puddings.—Take about three eggs for each quart of milk, beat them thoroughly and stir with the milk, adding salt and sugar or molasses to the taste, and a little nutmeg or spice if desired. It is now ready to pour into the pudding-dish and set in the oven as a custard pudding, or with apple or other sauce stired in, as a fruit pudding; or it can be used as a basis for almost any other pudding. Take the custard as prepared, and thicken it somewhat with cold corn cake or pone crumbled fine, and you will have a light and excellent Indian pudding, or thicken with dry bread well crumbled, for a good bread pudding, that will please all. Or the pieces of stale bread may be sliced thin, and slowly dried and browned in the oven, then pounded fine or ground in the coffee-mill, and a little of this powdered rusk—about one tablespoonful to a quart—used to thicken it, with ground clove for spice, and you have a rusk pudding.

Add rice which has been previously boiled in milk, to the custard, for a rice pudding, or a little sago or tapioca, well soaked and boiled, for a still further variety. Hominy well boiled, or grated sweet corn, too, make puddings which some are fond of. A pudding which we particularly like, is made by taking very thin slices of bread buttered thinly, putting a layer of this at the bottom of the dish, then a layer apple sliced thin, another layer of bread, and so on till you have enough, then pour a custard made at first directed over the whole, and put it into the oven. Or for the bird's nest pudding, take small tart apples, pare and core, put them in the pudding-dish and pour the custard over.

The proportion of eggs may be increased or diminished in any of these puddings, according to the supply, and rasins or West India currants can be added or not at the pleasure of the cook. All of these puddings should be baked very slowly, and not suffered to boil in the oven. Sweet cream, with sugar, and if wished, a ltttle nutmeg added, makes the best sauce for any of those. Or thicken boiling water with a little flour, add a small lump of butter, sugar, salt and spice, and either lemon juice, or lemon essence and vinegar, and yet have a good, plain sauce.—*Ohio Cultivator.*

SMUT ON WHEAT.

Smut seems to be a parasitic fungus, of which there are several varieties, as on Indian corn, wheat, &c. The black dust of matured smut is to be regarded as its seeds, each particle of which, however light and evanescent, is capable of germinating and producing its kind when brought into favorable circumstances. It is difficult to say precisely how these seeds find their way into the receptacles of growing wheat; but it is probable they adhere to the kernels of wheat when sown, and we know that in some way they are carried upward with the growing plant, and are developed at the base of the newly forming kernels simultaneously with the bursting of the spike from its sheath, or perhaps a little before the head makes its appearance. From this time the fungus grows and develops itself more or less rapidly, as the weather favors or otherwise, drawing its nutriment from the plant, thus partially depriving the forming wheat of its appropriate food, as well as insinuating a hurtful ingredient.

Now, on the supposition that the smut in wheat comes from sporules (smut seeds) distributed with the seed wheat, which we suppose to be correct, it follows, that if you could wash the seed before sewing, perfectly clean, there would be no smut in the crop; for however warm, damp, or lowery the seasor, smut will not grow unless there is seed for it to grow from. But it is impossible to secure perfect cleanliness from these sporules or smut seeds: they are too minute to be all washed away, and their vitality is not destroyed by pure water. Hence the importance of washing seed wheat in some solution that will destroy the vitality of such of the sporules as fail to be washed out.

Salt, plaster, quick-lime, arsenic, sulphate of copper, and other things have been recommended. The first is always at hand, and the next two are seldom far absent from the farm; and we believe that these are sufficient. If the seed be first washed in pure water, then in a weak brine, of say one quart of salt to a pailful of water, and then dried in plaster or quick lime, (the latter not too be used to fresh, nor very freely, lest it injure the vitality of the wheat,) we think that there will be little danger from smut, and that the operation will be favorable rather than otherwise to the germination and early growth of the seed wheat.—*American Farmer's Magazine.*

RENOVATING WORN APPAREL.

To remove grease spots from silks and satins, use fresh ox gall, or pure turpentine, camphene or burning fluid. Camphene is purified turpentine, and burning fluid is a mixture of three parts of alcohol to one of camphene, and is perhaps the best of all these. To remove acid stains, apply an alkali, as ammonia, (hartshorn), to the spot very carefully. With some colors ammonia will produce spots, hence it should be used sparingly, and applied only to the stain. Ink can be removed by being soaked or reapeatedly washed in solution of tartaric acid, or oxalic acid or salts of lemon. Woollen goods may be freed from grease by camphene, or burning fluid or alcohol, repeatedly applied, or even by soap applied liberally and well rubbed in. The cloth must afterwards be thorougly rinsed. Paint can be removed by camphene or burning fluid, repeatedly applied. Grease in a carpet may be removed by the same process, or by covering it with a considerable quantity of magnesia, which will gradually absorb the grease, and at least very much improve the appearance of the carpet. This process may require several days, and perhaps more than one application. Dry French chalk, or powder, upon a grease spot, will also absorb the grease, whatever the material to be cleaned, woollen, silk, &c. It must be applied liberally, remain a day or two, and be thoroughly removed afterwards by a brush. This is on the principle of absorption.

Ox gall may be prepared so as to be useful in this way, for an indefinite time, as follows:—Take one pint of gall, boil and skim, divide into two parts. To one add half-an-ounce of salt, and to the other half-an-ounce of powdered alum, both being heated till everything is dissolved. Pour into separate bottles, and let them stand in a quiet place for six or eight weeks, or till bright. Then pour off the clear portions and filter both through tissue or blotting paper into one vessel. In this state it will keep unchanged and free from odor.

To Stop Horses Frothing at the Mouth.—I have completely stopped frothing at the mouth by washing my horse's mouth out with the following mixture:—Six drachms of alum dissolved in a quart of sage tea, using it in a wine bottle, as you would refresh a race-horse, after a race, each time you go out.—*Cor. London Field.*

THE BEST METHOD OF STORING AND PRESERVING POTATOES DURING THE WINTER.

W. Frankland, Esq., said he considered that very much depends on the state the potatoes are in when taken up. As regards his own, this year they had been partially attacked with the disease, and he thought at one time they were going to be very bad; but they have turned out much better than he expected. Those diseased he sorts out as he takes them up. He then thinly spreads the good in his out-houses, when they are taken up wet; but this year they are so dry and clear that he has laid them much thicker. He lets them lie ten days or a fortnight to sweat, and then sorts them into three heaps, marketable, for sets, and the bad and small for pigs, &c. In about another fortnight he stores them in pits in the field, as by keeping in the house all the winter they are apt to shrivel, and do not look so blooming in the spring.

Mr. Geo. Welburn, of Eyingdales, said that he sorts his in the same way as Mr. Frankland, and spreads them accordingly; he has an out-house on purpose for storing them for the winter, and therefore never makes pits in the field. As soon as he thinks they are fit to put by, he stores them in his potato-house, and covers them with straw and dry sods. He takes particular care of his sods from year to year, always preserving them from wet. By these means, living as he does near the fishing town of Robin Hood's Bay, which he suplies all the winter, he can get easily at them at all times, whether frost or snow, which he could not were they in pits in the fields.

Mr. T. Ward, of Bannial Flat, said he does the same as Mr. Frankland as far as he has room in his out houses; but as he grows a large quantity he cannot take, perhaps, such minute pains and care of them. He causes them all to be sorted, as they take them up, and leaves all the diseased and bad ones on the land, and turns his pigs in to consume them. He first puts the good in small heaps in a field, and covers them with straw, and lets them lie in this way about a fortnight to sweat; he then has them properly sorted, and stores them in pits for the winter. He thinks Mr. Welburn's plan a good one, were there is a proper storing house.

Mr. E. Ormeston, of Struggleton said that he puts all his potatoes in the house the same as Mr. Welburn. He is very particular in sorting them, as he believes that the diseased potatoes infect the good; but in a few weeks after they have been taken up and sweated, they may then be stored for the winter, he having houses for the purpose.

All the other members present concurred in the opinion that potatoes must be allowed time to sweat before they are stored away for the winter, and the diseased regularly sorted from the good, as there is no doubt of the disease being contagious.—*Mark Lane Express.*

PRESERVING TOOLS FROM RUST.

Farmers should take great care of their farm implements at all seasons of the year, but more especially in the fall and winter seasons, when not in general use. The following compound is excellent to apply to all implements liable to rust:

Take about three pounds of lard and one pound of rosin. Melt them together in a basin or kettle and rub over all iron or steel surfaces in danger of being rusted. It can be put on with a brush or piece of cloth, and whenever it is applied it most effectually keeps air and moisture away, and of course prevents rust. When knives and forks, or other household articles, liable to become rusted or spotted, are to be laid away, rub them over with this mixture, and they will come out bright and clean even years afterwards. The coating may be so thin as not to be perceived, and it will still be effectual. Let every one keep a dish of this preparation on hand. As it does not spoil of itself it may be kept ready mixed for months or years.—Fresh lard, containing no salt, should be used. Rosin is a cheap article, may be obtained almost anywhere for four to six cents per pound.

To Mend a Chain Pump without Taking it up.—When the chain breaks, uncover the well and hook up one end of the chain. Tie a long cord to this end, and the other end of the cord to a large cork. Drop the chain with its cork down the pump tube, when, as soon as the cork passes the lower end, it will pop up to the surface of the water in the well. Draw it up and with it the cord, and with the cord the chain, when the chain is readily united, and the circuit made again.

MECHANICS.

"Out of nothing—nothing comes."

The laws of nature, unlike human laws, can neither be changed nor evaded; and, for want of a proper knowledge of simple and unchangeable laws, many men waste time and money in trying to produce great effects by insufficient means. The mechanical powers, as they are called, do not, and never can, create power—they only modify its application. The power most easily measured, is that of gravity, or weight: and it is the cheapest of all powers, or first movers, when, as in the case of a waterfall, nature constantly winds up the weight for us for nothing. Suppose then we have one thousand pounds of water falling ten feet in a minute. No human contrivance can make that water raise more than its own weight to the height of ten feet in the same time. It cannot raise quite as much, for the friction of the machinery must waste part of the power; but, as it may be a part let us omit the small friction from these calculations.

The effect of the mechanical powers is to enable us, while our original power remains the same, and the rate of its motion the same, to exert a greater power with a slower motion, or a lesser power with a quicker motion. But, in all such cases, the power produced multiplied by the speed with which it moves, will be found to give the same product. Thus one thousand pounds falling ten feet in a minute, may be made to raise ten thousand pounds one foot in a minute, or one hundred pounds one hundred feet in a minute, the same power being required in each case; but no man can make it do more, for if he did, he would create something out of nothing, which is contrary to a law of nature. For this reason all attempts to make a mechanical perpetual motion have failed, and forever must fail! as such a machine would be equivalent to making a weight raise another equal to itself to the same height in the same time, and enough more to overcome the unavoidable friction of the machine, which friction, however small, is certain sooner or later, to stop the motion, unless additional power is applied, sufficient to overcome the friction. Therefore every man who is trying to make a perpetual motion, or any machine which he expects to do more than the power applied to work it, is wasting his time and money in that which will be certain to end in disappointment.—*Exchange.*

PRESERVING GRAPES.

The following method of preserving grapes, from the *American Agriculturist*, is worthy of trial:

My mode of gathering and preserving grapes for Winter use is as follows:—When they are fully ripe, suspend a basket by a strap of cord passed around the neck, thereby giving liberty to both hands for picking; with one hand hold the cluster, and with the other cut it from the vine; remove from the clusters all unripe or decayed fruit, and deposit them in the basket until it is filled. (I use a market basket that will hold about a half bushel.)—Carry the grapes thus gathered to the place for packing. I use boxes about two feet square by six inches deep in the clear, with covers made to shut tight. In packing lay a newspaper on the bottom of the box, then a layer of grapes, then a paper and a second layer of grapes, which, when closely packed usually fills the box; set the box in some dry and airy place, with the cover open or off, and let the box remain open for ten days, or until the sweating process is passed; then close the box and set it in the fruit room, cellar or garret, any place where the fruit will not freeze, or which is not extremely damp.

Grapes packed as above directed, will open at any time during Winter or Spring following, as fresh as when packed, The only secret or mystery is, that the moisture which spoils the fruit when packed in saw dust and other absorbents, passes off during the ten days that the box remains open, instead of being absorbed, and remaining to keep the grapes damp, and ultimately mould and spoil them. I have practiced this method for several years without the loss of a single bunch of grapes. So perfect has been my success that I have more confidence in the preservation of the grape than any other fruit. I use *shallow* boxes for packing grapes, that the moisture may the more readily escape, and that the first layer in the bottom may not be crushed, by the weight above.

CHARLES CAMPBELL.

Pomana's Retreat, Aurora, Cayuga Lake, N. Y.

RULES FOR EXTERIOR DESIGNS FOR HOUSES.

1. In all cases study beauty of form and proportion, and not ornament. Tasteful simplicity is better than fanciful complexity—as a statute in simple drapery is better than one bedizzened with feathers, ribbons, and unmeaning gewgaws.

2. Proportion may be shown in the smallest cottage as well as in the most magnificent palace—and the former should be carefully designed as well as the latter. However small a building may be, let it never show an awkward conception, when a good form is more easily made than a bad one.

3. The general outline of a building should not only exhibit good proportion, but every part. The height of a room, of a door, a window, should accord with its breadth; and the distance and distribution of these should observe the same rule, and should correspond with the expression as a whole.

Rules for Fattening Animals.—1. Let them have good, clean, nourishing food. 2. Feed them with the utmost regularity as to time—for "hope deferred" wastes flesh by fretting. 3, Feed often, and never give a surplus. 4. Let the pen or stable be kept clean and sweet—dirt or filth is always adverse to thrift. 5. Let the air be fresh and pure. 6. The water they drink must be pure. 7. They should have *rest* most of the time, and only very gentle exercise. 8. Keep them tranquil, and avoid fright and anxiety. If all these are carefully observed, they will make a vast difference in results.

To Make Hens Lay in Winter.—Provide,

1. A comfortable roost;
2. Plenty of sand, gravel and ashes, *dry*, to play in;
3. A box of lime;
4. Boiled meat, chopped fine, every two or three days;
5. Corn and oats, best if boiled tender;
6. All the crumbs and potato parings;
7. Water, not cold, or blood warm.

This treatment has proved quite successful—and hens which, without it, gave no eggs, with it immediately laid one each, on an average, every two days.

Asparagus.—It would be a curious item for the census statistics to know what portion of the farmers of America raise asparagus; a plant so easily grown and so valuable for food that no farmer's table in the proper season should ever be without a dish of the fresh cut buds, tenderly boiled in clear water, and served up in a deep dish with toasted bread and drawn butter. It is one of the easiest things to produce that a farmer ever grows for food; as he can have an annual supply of it with a very small amount of labor or cost of fertilisation. It will grow in any well prepared soil, though best in a deep, rich loam, spaded up, or trenched deep, highly manured, which appears to be all that is necessary to insure an abundant crop.

By covering the bed every Fall with compost, or even barn-yard manure, and forking it in early in the Spring, you can keep up the fertility of the bed, and thus have a supply for many years. Some think that a dressing of salt is an excellent stimulus for asparagus, because, being a marine plant, salt is natural to it. Chip manure or leaf-mold is excellent for a top dressing. So is pure sand.—*Exchange.*

Preparation of Hams.—B. P. Johnson, of the N. Y., State Agricultural Society, found on a recent visit to Maryland, hams far superior to any he had ever met with in New-York—and received the following account of the mode of preparing. We can fully endorse all that is said in favour of this mode of preparing and cooking, having used substantially this mode for many years:—

To every 100lbs of hams, take 8lbs. of fine salt, 5 ounces of saltpetre, 5 ounces of brown sugar, half a pint of molasses, and an ounce of African red pepper; first sift and powder the saltpetre, and pass the salt and sugar under a rolling pin, and then mix altogether. Rub this well on the skin side, and slightly on the flesh side, putting as much as possible into the hock. Place them on a platform for six weeks. [We repeat the rubbing two or three times.] Smoke with hickory wood. If the hams are large, they must be boiled six hours—if small, or if but half a one is taken at a time, four or five hours will do. Keep the pot filled, supplying evaporation with hot water. [The directions state that after the first boiling, the pot should be partially withdrawn, so as to allow simmering merely, but we do not see any special advantage, as *simmering* and *rapidly boiling* water are both at 212° of the thermometer.]

To Prevent Cistern Pumps Freezing.—Cistern pumps often are made to bring up the water through curved or inclined lead pipe, so as to conduct it to any desirable place in the kitchen. They usually have a valve to open by a stroke of the pump-handle, and let all the water down again, so as not to freeze. But careless hired girls frequently omit this, and the lead pipe is filled with ice, which often splits the lead and spoils the pump. A safer way, therefore, is to place a small splinter of wood under the lower valve, to let the water leak out in about five minutes, and drain the pump. This is to remain only during winter. The best pumps are now made so as to *screw off* the base in a few seconds laying the lower valve to view. If pump tubes become acutually filled with ice, they may be quickly thawed by pouring hot water *directly* on the ice, through a small lead or other tube, which must settle as fast as the ice thaws. Ice may thus be thawed a foot per minute—but without this tube it could not be thawed in a whole day, for the hot water being lighest, remains at the top.

Keeping Potatoes in Winter.—Potatoes spoil in winter, if buried, from three causes. First and greatest, want of ventilation. Secondly, and nearly allied, dampness. Thirdly and more rare, freezing. Farmers find most of their potatoes spoiled at the top of the heap, where they suppose they became frozen ; but this is not the usual cause ; the damp, foul steamy air ascended there, and could not escape, and this spoiled them. A hole made in the top, with a crowbar, and closed with a wisp of straw, would have allowed egress to the confined air, and saved the potatoes.

The best way to secure potatoes out-doors, is to make large heaps, say 50 or 60 bushels see that they are dry and clean, by digging before wet weather comes on ; cover them all over with *one foot* of *packed straw*, and three inches of earth. The straw will prevent dampness, and the few inches of earth will favor ventilation. A farmer who raises many potatoes, and practices this mode, does not lose a peck, on an average in 50 bushels.

Gutta Percha Photographs.—It is announced that gutta percha photographs are a recent English invention. The negative picture is produced in the ordinary manner upon the colodion film on a sheet of glass, and it is fixed and dried in the ordinary manner ; it is then dipped in a solution of gutta percha, and after draining off the excess it is dried by a gentle heat, and nearly a transparent film of gutta percha will be found upon the collodion. If the film is not sufficiently thick, this operation is repeated one or more times until a snfficiently thick film of gutta percha is formed. The whole is next immersed in water, which causes the colodion to separate from the glass, and come away with the film or sheet of gutta percha firmly adhering to it. These films or sheets are sufficiently transparent, and are tough and flexible, and may be handled without injury.

Re-dressing Millstones.—This operation, formerly so tedious, can now, it is said, be performed with much facility and success by a machine devised for the purpose. With this machine, any person capable of turning a crank can re-dress the lands and furrows of a millstone in a very accurate and expeditious manner. The novelty of the invention consists of a number of picks guided and fed back and forth from eye to circumference of the stone, by means of a screw shaft and as they traverse are caused to rise and fall, by means of a cam shaft. The chisels, or blades of picks, are so confined that the liability of their being broken, owing to their high temper and concussion with stone is by this uniquearrangement completlely avoided.

The Greatest Steam Invention Yet. — The *Baton Rouge Gazette* under the above heading, has the following :

Wm. St. Martin, of this city, has invented an engine which can be constructed, boiler and all, for about $50. The machine is so simple that we might with propriety say it is merely an escape-pipe, taking up no more room. The steam is admitted into the centre of a drum or cylinder, in which the shaft works ; from this the power is applied directly, without further friction. The other day we saw the perfected model of the engine pumping water about twenty feet, and throwing it into the reservoir at the brewery.—This is the appartus wanted, for getting in a cheap manner, one or more horse power to drive small machinery. Mr. St. Martin has made application for letters patent and when he gets them, we think he has a fair prospect to realize something from the result of his genius.

Food Consumed by Cows.—Prof. S. W. Johnson says that according to experiments made in Bavaria, cows to give the greatest quantity of milk, must consume daily one-thirtieth of their live weight in hay, or other food of equivalent value. More food increases flesh and fat, and less diminishes milk.

Coloration of Poisons.—A late writer recomends that all poisons employed or sold by druggists be stronlgly colored with carbo-azotic acid, one grain of which is sufficient to impart a distinct yellow to 70,000 grains of water. This acid has the peculiar property of imparting a yellow color to the skin of a person taking it, as also to any food in which it might be mixed. It has been proved not to destroy or in any way modify the beneficial effects of prussic acid in which it has been mingled, and the inference is that it would prove equally inert in other poisons, while it would serve to alarm the user, and indicate the poisonous character of any preparation in which it had been mingled, either by accident or design.

Cheap Barometer.—Take a clear and clean bottle, and put in a small quantity of finely pulverised alum. Then fill up the bottle with spirits of wine. The alum will be perfectly diss lved by the alcohol and in clear weather the liquid will be as transparent as the purest water. On the approach of rain or cloudy weather, the alum will be visible in a flaky spiral cloud, in the centre of the fluid, reaching from the bottom to the surface. Thus a cheap, simple, and beautiful barometer, is placed within the reach of all who wish to possess one. For the simplicity of construction, this is altogether superior to the frog barometer in general use in Germany.

Blacking for Horse Harness.—Melt 4 ounces of mutton suet with 12 ounces of bees-wax, and 12 ounces of sugar candy, 4 ounces of soft soap dissolved in water, and 2 ounces of indigo, finely powdered. When melted and well mixed add half a pint of turpentine. Lay it on the harness with a sponge, and polish it off with a brush. The blacking is for working harness, which should be cleaned and polished up at least once a week when in constant use.

The following is a receipt for carriage harness blacking :—Take three sticks of black sealing wax, dissolve them in half a pint of alcohol, and then apply with a sponge. Lac dissolved in alcohol, and colored with lampblack, will answer the same purpose. This is a quick drying, hard varnish, liable to crack the leather, and should, therefore, be put on as seldom as possible.

Elderberry Wine.—Take three quarts of black elderberries, when quite ripe, to a gallon of water and four pounds of brown sugar, a little root ginger and a few cloves. Boil the berries and water half an hour, strain them, and then boil the wine and spice together about an hour. Skin the froth as it rises. When it is boiled, let it stand till almost cold ; then add a teacupfull of yeast, and let it stand three days. Then barrel it, and let it stand four months, when it may be bottled, with a lump of sugar in each bottle. Cork tight, and keep in a cool place. Age improves it.

Elderburry Syrup.—Take of the juice of Elderberry one quart; boil it to one pint; strain and add two pounds of double refined sugar ; again place it over the fire ; so soon as it shall have boiled, remove it from the fire, and when cold bottle it for use, taking care to have it well covered. With a less quantity of sugar there will be danger of its becoming mouldy. As a gentle purgative, this syrup is an excellent medicine, of very pleasant taste, and is peculiarly serviceable to children who are not easily induced to take common medicine. The dose for an adult is a wine-glassfull.—*New England Farmer.*

Storing Ruta Bagas.—These roots heat easily, and they require most thorough ventilation. Next, to be kept as cool as practicable, without freezing—a little frost will not hurt them, if thawed very gradually. If stored in a cellar, they must not be placed on the bottom of the cellar, but kept a foot above, on a coarse wooden grate, which may be made of rails. This will admit air freely. If heated, they become dithy and comparatively worthless.

If kept out-doors, they should be placed in *ridges*, not over three feet wide, and as steep as they will pile, and as long as convenient. Cover well with sraw, then a few inches of earth—in the northern States, six inches will do. Pat the earth smooth with a spade, to drain off rains. Then make a hole with a stake or crowbar, every six feet, and put in a wisp of straw—this allows ventilation.

Grinding or Crushing Food.—Chemical experiments have proved that the outer skin of grain is nearly insoluble, by the gastic juice of animals. Hence, when grain passes through them whole, it imparts but a small portion of nutriment to the animal. But if only broken before feeding, or by mastication, the whole of the kernel is digested, and the skin only passes away.

HONORABLE NOTICE OF AN IMPORTANT DISCOVERY.

Nearly ten years ago Mr. John Kyle, an eminent horticulturist in the neighbourhood of Glasgow, Scotland, after a long course of experiments, propounded as a preventive and cure for the grape disease, which about that time commenced its ravages in France and Spain, the application of sulphur to the plant. Mr. Kyle's mode of cure was the subject of considerable discussion at the time, and by not a few it was treated as preposterous and ridiculous. Year after year, however, facts accumulated in its favor, and at length all objections were silenced by the most satisfactory demonstrations of the efficiency of the cure. After this discovery had acquired some celebrity, it was made the subject of careful experiments in France, and found to be an effectual remedy for the vine-blight, which had been considered a very serious calamity. A report has just been presented to the French Government, mentioning that the remedy for the disease first propounded by Mr, Kyle, in 1848, is the only which has proved successful, not only in destroying, but also in preventing the blight; whereupon the government, in conjunction with the Societe Industrielle, has awarded 10,000 francs (about $2,000) to Mr. Kyle, as the first propounder of the cure.

This wholly unsolicited and unexpected reward is highly honorable to all the parties connected with it.

It seems somewhat probable that sulphur may yet be found to be effectual as a remedy for other forms of blight, mildew, &c., such as are known to attack the potatoe plant, the hop, the gooseberry, the peach, and our most important cereals, as wheat, barley and oats. The diseases affecting these several plants, commonly known as blight, mildew, rust, &c., are thought by many to be of a similar origin, and to be the results of minute fungi, of which different species attack different plants. The great success which has resulted from the application of sulphur to one species of this multiform disease, seems sufficient to encourage to the undertaking experiments with it in other forms. We trust that some of our more enterprising readers will bear this in mind next year.—*Country Gentleman.*

A MODERATE ESTIMATE OF THE VALUE OF SORGHUM.

A gentleman in Michigan, who avers that he has kept himself entirely free from all excitement or fever, in regard to this agricultural novelty, and at the same time has never given utterance to a sneer or a grumble against it as a humbug, thinking it wiser to wait patiently for the results of the experience before forming any judgment or opinion about the matter, writes as follows:—

"I think I can very plainly perceive in certain of the reports which have been given to the public in regard to the yield of syrup from the Chinese Sugar Cane, a disposition to exaggerate, or some manifestations of that tendency to delirious raving which is so frequent in fevers of the same kind as that which has lately made its appearance, and goes by the name of Sorghmania. Several published accounts of the yield of molasses from the Sorghum, give estimates of the amount which may be calculated upon per acre, which far exceed any reality which has as yet come under my personal observation. Still I have no doubt that in southern portions of Ohio, Illinois, &c., and in states still further south, the yield will be always considerably greater than in Southern Michigan, to which last my observation has been confined. Some even here, talk very confidently of obtaining from small experimental patches, at the rate of from 250 to 300 gallons of syrup per acre. Of the accuracy of the measurements employed in these cases, I am ignorant; but am able to speak positively as to one piece of half an acre, which received exactly such manuring and cultivation as are usually bestowed on crops of Indian corn. The cane grew on this piece to the height of from eight to over ten feet, and matured only a part of its seed before frost. After being crushed pretty effectually in a cider mill the juice was boiled down to the consistence of ordinary New Orleans molasses, and the amount was found by *accurate* measurement to be 60 gallons, or at the rate of 120 gallons of syrup per acre.

"In the latitude of 41° to 42° we believe this was an *average* crop, and we can, therefore, be not a little incredulous when we hear of estimates reaching *greatly* beyond this accurately ascertained result. In lower latitudes, in warmer seasons, or with higher cultivation, larger yields might readily be credited or calculated upon. But even at this rate our farmers can procure syrup from the Sorghum cheaper than they can raise other produce to exchange for sugar and molasses."

Sulphur Paint.—A Sulphurized oil paint, prepared by subjecting eight parts of linseed oil and one part of sulphur to a temperature of 278 degrees, in an iron vessel, has recently been brought to the notice of the Society of British Architects. This paint, when applied in the ordinary manner, to the surface of a building of stone or brick, or to wood work, effectually keeps out the air and moisture, and prevents the deposit of soot and dirt. If is recommended as cheaper than ordinary paint, and may prove worthy of attention, says the *Scientific American.*

Good Tallow Candles.—I have seen the use of rosin suggested as an article for hardening candles. My mother has had a little experience in it, and suggests that it should be used very sparingly, if at all. Although her candles burned very brilliantly, yet the rosin seemed to generate too much heat, causing the candle to run down, and of course to waste away very rapidly.

We use alum for this purpose ; also beeswax if we can get it, and think it both econmical and gives a clear light. In dipping candles, we add the beeswax when partly done, that in may form a coating on the outside. J. B.

Cutting Pantaloons.—For boys from eight to sixteen years old, it is a good way to cut their pantaloons with only one seam in the leg. The cloth can be doubled over so there is no outside seam. It takes no more cloth, looks just as well, and saves time for a farmer's wife, who has a multiplicity of cares and chores at all times.—*Cor. Ohio Cult.*

To Make Sticking Salve.—Three pounds of rosin, half a pound mutton tallow, half a pound of beeswax, and a table-spoonful of sulphur ; melted, poured into cold water, and worked and pulled an hour.

CONTENTS.

THE

Canadian Agriculturist.

VOL. IX. TORONTO, DECEMBER, 1857. No. 12.

NOTICE TO SUBSCRIBERS—END OF THE VOLUME.

The present number closes the *ninth* volume of the *Agriculturist*. We have endeavored under many discouragements, to keep the *Agriculturist* up to the standard which we marked out at the beginning of the year; but have probably failed, and come short in some points. Still, on going through the volume for the purpose of preparing an Index, we have felt assured, by the variety, interest, and importance of the contents, that *if read* by those into whose hands the work has been placed during the year *much good* must have been accomplished.

In addition to the twelve numbers of the *Agriculturist* we have been able through the liberality of the Board of Agriculture, to supply our subscribers with several pages of the current volume of the Board's "Transactions," containing matter of peculiar interest to every Canadian Farmer. This has been furnished at considerable extra cost and trouble to us, and without any expectation of direct profit in return. We hope our subscribers, and especially members of Agricultural Societies, will appreciate these efforts to disseminate useful information, and to awaken increased interest in their calling among the tillers of Canadian soil. If they do, they will show that appreciation by making additional efforts to extend the circulation and usefulness of the *Agriculturist*. We want at least 5,000 additional subscribers to make the work a paying one at the present price. Will the farmers of Canada allow us to go on, year after year, devoting a large portion of time and means to to their interests, without even a fair indemnity for actual loss? We have persevered for ten years in this almost thankless labour, and begin to feel somewhat weary. It would grieve us to see the publication we have endeavored to establish through so many years of trial and disappointment go down at last. Other pursuits offer the writer far more encouraging rewards, but he could not abandon the *Agriculturist* without a pang of regret. As we stated on a former occasion, it has been from the first a "labour of love." But we did hope to establish the work on a footing of respectability, as to appearance and intrinsic merit, that would command the support, pecuniarily, of the

class in whose cause we labour. The price has unfortunately been fixed so low that a very large circulation is required to pay expenses. We believe every half-dollar Agricultural paper in the United States but one, has been given up. It was the issue of a number of these and their introduction into Canada, that induced us to lower the *Agriculturist* to the same price. The question now is, whether we ought not to raise the price or abandon the work? As it circulates chiefly among Societies, and as they want all the funds at their command for exhibition purposes, we fear an in crease of price to *them* would prevent them taking the paper.

We shall therefore make an effort for another year, at the present rate, trusting to an increased circulation.

All subscribers for 1857 who *continue the work*, will receive the remaining sheets of " Transactions," thereby obtaining a complete volume of that publication. If the Board furnish us their next volume on the same terms as the present, we will send that also to subscribers.

Persons *renewing* their subscriptions should state that they were subscribers for 1857, if they desire the remainder of the " Transactions."

Societies in arrears, will greatly oblige us by an immediate remittance. And those ordering for 1858, should remember that our terms are *payment in advance.* It causes us much embarrassment as well as loss, to wait till the end of the year. Printers and paper-makers cannot, and *will not* wait so long. Still where Societies have not the funds in hand, we must wait as heretofore.

Terms, for 1858—50 cents per copy.

AGRICULTURAL STATISTICS—THEIR IMPORTANCE.

The following remarks on Agricultural Statistics, is from the *Mark Lane Express*, the highest authority on all such topics in Great Britain. The figures and comments upon them, relating to the United States and Canada, will be found worthy of perusal by the intelligent agriculturists of this country. We trust when the next Census is taken in Canada, efforts will be made to secure more reliable statistics in regard to the agricultural productions of the country, than on the last occasion :—

Looking at the large extent of our trade with the United States, and the extensive supplies of agricultural produce we draw from thence, accurate statistics are greatly required, and would be very acceptable. The American government professes to do much in the way of returns, and the commercial journals of the States issue elaborate, but very conflicting estimates from time to time, of the prospects of the crops, the results of the harvest, the shipments, average prices, &c. In nearly all the departments of human effort connected with commerce and agriculture, with which the prosperity of the Republic is most immediaiely identified, there is felt to be a lamentable want of trustworthy information.

One of the latest Philadelphia papers received, touching upon this subject, says:— " The great crops of the present year are nearly harvested over a large portion of the country, and are rapidly maturing in the other part of it. Yet at this time we have not even the meagre returns which are issued from the Patent-Office of the results for last

year There are no official data at Washington upon which the productive industry of the United States can be accurately calculated; and all the statements which have been put forth, professing to give precise aggregates of the various crops, are conjectural and without any means of verification."

To the statesman, the merchant, the farmer, the mechanic, the manufacturer, and indeed the men of every pursuit, reliable returns of the production and industry of a country are of the first consequence. They form the basis upon which public policy should be directed and private interests governed.

Most of the European governments have, with a just appreciation of the value of statistics, taken extraordinary pains to establish a thorough system, extending to every calling, through which the completest and most detailed information is obtained every year. The examples of Scotland and Ireland show that there is no serious practical difficulty in organizing a system for obtainining early and reliable information with regard to the yield of the cereal crops. It requires but two leading requisites: first, intellectual comprehension, to grasp the subject in its large entirely; and next, the faculty of detail, by which its minute parts might be judiciously distributed over so large an area as the American Union presents, and embracing so many pursuits. A department or bureau on such a basis would materially reduce the cost of taking the decimal census besides furnishing materials for authenticating its most valuable results; and the people would thus be enabled to get some actual knowledge of the progress, resources and annual wealth of the country.

In the absence of these collective official data, we are left to glean from various commercial channels the figures calculated ta afford any indications of the condition of the States.

Agriculture has made wonderful progress everywhere in the last quarter of a century, and especially in the United States. The Americans are now not only producing grain enough to supply their own rapidly increasing population, but have millions of bushels to spare. In the ten years between 1840 and 1850, the annual aggregate wheat crop of the United States was increased from 84,000,000 to 100,000,000 bushels, an advance of nearly 20 per cent.; but in 1855 it had further increased to 165,000,000 bushels, a larger ratio still.

In the new States the wheat crop is greatly on the increase, owing to the virgin soil of the country, and the large tracts of land which are annually cleared or broken up and brouht under cultivation. In the middle States, where a favourable soil has been supported by careful tillage and suitable manures, the wheat crop has held its ground. But in the older States, wheat production may be said to be rapidly on the decline. Climate in the north-earstern States, and careless culture, with a general disregard of the wants of the soil, are among the most active causes for this decline.

Europe can no longer, under the increasing demand for comforts by the million, supply their food-wants: and an annual balance has therefore to be drawn from the countries across the Atlantic. The additional work to be performed by the United States long since exceeded the labouring force at her disposal; and a triumph of intellect over physical exertion was finally achieved by the inventive genius of the nation. Sowing, reaping, thrashing, and mowing machines have, according to the American journals, turned already, in the United States, a million of hands from the labours of the field and the barn to other kinds of employment, which, though necessary, would otherwise have been left undone. The entire value of the work produced by this million, while the newly-created machinery prepares the materials for their sustenance, is a clear annual gain to the country and to society at large.

In the invention and construction of labour-saving machinery to farming purposes consists the progress of the middle of this nineteenth century in agriculture: and, wonderful as the results appear, we stand as yet only upon the threshold of the new era of reform and improvement.

The United States may br divide into four characteristic geographical sections: I. The large southern and south-western section, engaged extensively in the cultivation of the great staples of cotton, sugar, and rice, with Indian-corn as the principal element of subsistence. 2. The southern and south-western section, engaged principally in the cultivation of grain, tobacco and hemp, and the rearing of live stock, in which slave-labour is employed to a considerable extent, though not upon so large scale as in the first section.

3. The large northern and north-western sections, engaged very extensively in growing all kinds of grain, hay, root-crops, and other agricultural products of less value. 4. The eastern section, where manufacturing and mechanical arts form leading branches of industry in most of the States, combined with agricultural products (consumed almost exclusively at home), with dairy husbandry, and fishing and navigation followed in most of them.

The value of the breadstuffs and provisions exported from the United States has progressed as follows:—1845, 16,743,421 dollars; 1850, 26,051,373 dollars; 1854, 65,901,240 dollars.

The aggregate domestic exports of the country, which in 1821 were under 65,000,000 dollars, were in 1849 131,710,081 dollars, and in 1856, 266,438,051 dollars, while in 1854 they had been even twelve millions of dollars higher.

We have data from Washington before us, which, though not very accurate, gives probably a tolerably close estimate of the agricultural produce of the United States in 1855. From these it would appear that the crop of Indian corn was about 600,000,000 bushels, valued at 360,000,000 dollars; the crop of wheat, 165,000,000 bushels, valued at 247,500,000 dollars.

The oat crop, 170,000,000 bushels, valued at 68 million dollars, and potatoes—110,000,000 bushels, worth 41½ millions dollars. The cotton crop was estimated at 136 million dollars, while the hay and fodder crop was equal to 160 million dollars. The aggregate of the vegetable products was valued at upwards of £271,000,000 sterling, and the domestic animals and their products at 186½ million pounds more, showing that the agricultural resources of the country are of vast extent and magnitude. From the single port of Chicago alone the grain and flour exports to Europe are enormous. The shipments in 1855 were equal to 16,633,813 bushels, and in 1856 to 21,583,221 bushels while the general receipts of grain have gone on increasing until that city has become the largest grain depot in the world. In 1854, 15,804,423 bushels were received there; in 1855, 20,487,973 bushels; and in 1856, 24,674,824 bushels, a steady annual increase of 20 to 30 per cent. The whole shipments from the United States to England in the year ending June 30, 1856, were 8,269,001 bushels of wheat, and 6,704,105 bushels of Indian corn, which was not equal to the collective shipments to different places from the single port of Chicago.

The British province of Canada is keeping pace with the United States in its grain produce. The wheat crop has increased by some 12,000,000 bushels in five years; and last year 9,391,531 barrels of flour were exported, against 6,413,428 barrels in the previous year.

REAPING-MACHINES IN SCOTLAND.

We condense the following from a Scotch paper. An interesting local competition of reaping-machines took place at Inchture, under the auspices of Lord Kinnaird. The match took place on a field of wheat on the farm of Mr. Suttie, New Mains of Inchture, and although many who had been expected were prevented from attending on account of Falkirk Tryst being held the same day, the novelty of the scene attracted a good many spectators, and their number would have been largely increased had the competition been more generally known. Among those present were the Right Hon. Lord Kinnaird; Hon. Arthur Kinnaird, M.P., Sir John Ogilvy, M.P., Mr. Heneage, M.P., Colonel Kinloch of Kilrie: Mr. Sime, Balgay, &c. Lady Kinnaird and the Hon. Mrs. Kinnaird were also present in their carriage during a considerable part of the day, and appeared to be interested spectators of the working of the various machines. The machines entered for competition were:—

1. Lord Kinnaird's, made by James Bury, self-delivering, the delivery of the grain being by three revolting strips of cloth, with cross wooden bands at short distances, to give a roughness to the surface—a recent improvement by Lord Kinnaird.

2. M'Cormick's machine, made by Bury, and also self-delivering by a revolting web (the machine that was used by Lord Kinnaird last year), belonging to Mr. Suttie.

3. A Dray's Hussey, belonging to Mr Murray, Wardheads, and the delivering of the grain being by a person with a rake.

4. A Bell's machine, belonging to Mr. George Bell, Inchmichael.

5. Burgess and Key's improved M'Cormick, with the self-delivering screw apparatus adjusted to it by them.

6. A Crosskill's Bell, belonging to Mr. Brough, Mains of Inchture. This machine was withdrawn shortly after the commencement.

The trial commenced about twelve o'clock noon, the field of wheat having been previously divided into portions of two imperial acres for each machine.

The first machine, which attracted much attention on account of its novelty, was the property of Lord Kinnaird, and was at work for the first time, having only been completed a few hours before the commencement of the competition. The leading peculiarities in this machine are—that it has a lever-power attached to it by which the cutters can easily be shifted so as to cut the grain high or low, and that it delivers the grain on an entirely new principle. Instead of delivering the grain by a sheet of canvas this is effected by means of three revolving canvas belts or bands, on which are placed small wooden bars at short intervals. This machine cut the wheat most satisfactorily, and left the grain at the side in a very regular way, so as to make the work of binding a comparatively easy matter.

The second machine, which is the property of Mr. Suttie, and which was exhibited last year by Lord Kinnaird, delivers by a revolving web of cloth, like Bell's, and is worked with great ease, the work being also well done.

The third (or Dray's Hussey's) machine, which belonged to Mr. Murray, Wardheads, and with which he has cut down all his crop this year, was also admired for the excellent work it made. It is smaller than any of the other machines, and therefore cuts down a less breadth of grain in a given time, and it has also this additional disadvantage, that it requires two men to work it—one to drive, and another to stand behind and deliver the grain with a rake. This, however, is partly compensated by the fact that the deliverer leaves the grain in neat sheaves, all ready for binding, so that the time spent in gathering the grain into sheaves after the other machines is saved by the Hussey machine. It is also comparatively light, costs only £25., makes excellent work on all kinds of grain, and is altogether a very good machine for a small farm, as it cuts down from seven to eight acres a day, and with nine persons in attendance to bind and stock the grain, besides the two who work the machine, the work is completely finished at once.

The fourth, or Bell's machine, the property of Mr. Bell, Inchmichael, was the largest and heaviest machine, and could evidently go through much more work than the others in a given time, though with harder work to the horses. It has this great advantage, that as it is driven from behind, it can enter the field at any part at once, while all the others require first a portion to be cut down by the scythe, as they are either driven by the side or front of the machines. Another advantage possessed by Bell's machine is, that as the grain can be delivered at either side of the machine, it can cut up or down the field with equal facility. The great drawback of the machine at work on Tuesday was its extreme weight, upwards of 17 cwt., while Lord Kinnaird's and the other machines were scarcely half that weight. We believe, however, that this description of reaper is now made of lighter construction, and in that case it is likely to keep its ground as an excellent machine, for general use, for although it is much higher in price than Dray's Hussey, or even than Lord Kinnaird's improved machine, it does its work much more quickly, and on the whole nearly as satisfactorily as these machines; for although Dray's Hussey leaves the grain in sheaf, it requires an additional man to do so.

The fifth machine, which was a M'Cormick, improved by Burgess and Key, and is the property of Mr. Suttie, divided the attention of the spectators with Lord Kinnaird's partly on account of its novelty, and partly on account of the neat method in which it delivered the grain by means of revolving screws. This machine gained the prize at Salisbury last year, and it has certainly many claims on the attention of the farmer, as it appears to cut the crop as well as Bell's machine, while it lays the grain out in a finer swathe.

The sixth machine was a Crosskill's Bell, the property of Mr. Brough, but it was not so long on the field as the others, and besides it is more generally known, so that it excited less curiosity.

After the machines had cut down their respective lots, the company were hospitably entertained to luncheon by Mr. Suttie.

The judges—Colonel Kinloch of Kilrie; Mr. Bowie, Mains of Kelly; and Mr. Smith, Westhall—gave in the following report at the close of the competition:—

"We the undersigned, having been requested by Lord Kinnaird to inspect and report upon the merit of several reaping machines, as well as upon the skill and proficiency of the conductors at a trial held on Mr. Suttie's farm at New Mains of Inchture, give it as our opinion, although difficult to decide from the unfavourable state of the field and the lay of the wheat, that the prizes, amounting in all to £3 and the Highland Society's silver medal, should be awarded in the following order:—

"1st To David Anderson, servant to Mr. Suttie, New Mains, conductor of Burgess and Key's screw machine, 5s, and the medal.

"2nd To Andrew Anderson, servant to Lord Kinnaird, driver of Lord Kinnaird's new machine £1.

"3rd. To David Bisset, deliverer, and to Barclay Murray, driver of Dray's Hussey machine, belonging to Mr. Murray, Wardheads, 10s. each.

"4th. Peter M'Donald, driver of Bell's machine, belonging to Mr. Bell, Inchmichael, 10s.

"5th. W. Anderson, driver of Lord Kinnaird's old machine, servant to Mr. Suttie, New Mains, 5s.

"Considering the nature of the crop, the work on the whole was very much to our satisfaction. We remarked specially the efficiency of the work performed by Burgess and Key's machine, and the regular way it laid the wheat in the swathe. Lord Kinniard had a machine at work for the first time, in which he has introduced several improvements—more particularly his principle of shifttng to cut high or low, and the wooden-barred canvas belts in place of the large sheet of canvas commonly in use. This machine costs only £30, and did its work admirably. We also noticed Mr. Bell's machine making fine work, although we considered both man and horses rather hard wrought. Hussey's machine made excellent work, and was very well handled by the two men in attendance, but it went over less ground than most of the others. We cannot omit noticing the great zeal and perseverance of the landlord, Lord Kinnaird, in trying to get the best reaping machines introduced into this country; and the exhibition of to-day warrants us in giving it as our opinion that very soon a perfect reaping-machine will be in general use."

Turkish Mode of Making Coffee.—The Turkish mode of making coffee produces a very different result from that to which we are accustomed. A small conical saucepan, with a long handle, and calculated to hold two table-spoonful of water, is the instrument used; the fresh-roasted berry is pounded, not ground, and a dessert-spoonful is put into the minute boiler; it is then nearly filled with water and thrust among the embers; a few seconds suffice to make it boil, and the decoction, grounds and all, is poured out into a a small cup, which fits into a brass socket much like the cup of an acorn, and holding the china cup as that does the acorn itself. The Turks seem to drink the decoction boiling, and swallow the grounds with the liquid. It is taken plain—sugar or cream would be thought to spoil it; and Europeans, after a little practice, are said to prefer it to the clear infusion drank in France. In every hut you will see those coffee-boilers suspended, and the means for pounding the roasted berry will be found at hand.

There is nothing so agreeable to nature or so convenient to our affairs, whether in prosperity or adversity, as friendship.

Tar, a Remedy for Mice.—I find that the application of tar with a stiff brush to the bodies of young fruit trees will prevent the mice from girdling them, when drifted with snow in winter. Will you or some of your subscribers be so kind as to inform me whether tar will be in any way likely to injure the young trees.—J. V. Shanke, *Springport, in R. N. Yorker, Nov.* 1857.

Remark.—The tar will not injure the trees, so say those who have tried it.

ETOBICOKE TURNIP MATCH.

The match comprised ten competitors, paying one pound each; the Agricultural Society, for the encouragement of root culture adding the sum of five pounds, making a total of fifteen pounds, which was divided into three premiums, £6 5s., £5, and £3 15s., espectively.

Toronto, Nov. 14, 1857.

Thomas Musson, Esq., Sec. Etobicoke Agricultural Society.

Dear Sir,—We the undersigned having been appointed, with Mr. George Leslie, (whose unavoidable absence we regret); judges of turnips, and instructed to assign three prizes to the three best specimens of turnips, of not less than one acre each, beg to report as follows:—

On the 10th and 11th instant, we inspected the turnips of the six competitors who had resolved on standing the trial. In each case we measured off a space 33 feet square, equal to the fortieth part of an acre, in what appeared to be an average portion of the field, and after topping the bulbs the produce was carefully weighed, a process much better calculated to secure trustworthy results than the most exact measuring.

We shall state briefly a few facts and inferences relative to each growth, in the order of the amount of produce, beginning with the largest.

Mr. Robert Conway, near Weston, in the Township of York, had a splendid piece of purple and green top Swedes of about two acres. The ground was deeply ploughed in the fall after potatoes, and liberally manured with form-yard dung. Turnips sown about the middle of June, with a slight dressing ot the same kind of manure, in drills 24 inches asunder. The soil a lightish loam resting on a thick stratum of gravel. The latter fact will in a measure account for the soundness and superior quality of the bulbs after so wet a summer. The space measured (one-fortieth of an imperial acre,) yielded 1642 lbs of excellent well-grown turnips. Estimating a bushel of Swede turnips at 56 lbs, this would be at the rate of 1173 bushels per acre!

Mr. William Lee, of York Township, near the Don, dressed with stable-yard manure, purple-top variety, in drills 20 inches apart, sown 10th of June. A light soil, resting on a wet subsoil. Bulbs rather small, with a strong inclination in some to decay, and long necks or shanks; owing, no doubt, to the wetness of the soil and the peculiar character of the season. Yield 1129 lbs., being at the rate of 887 bushels to the acre.

We were much interested in observing the operation of some covered drains in the same field, four feet deep. They were laid with three-inch pipes, and have kept running through the whole of the summer, discharging an immense amount of water. Mr. Lea manufactures various kinds of draining tiles, pipes, &c., of excellent quality.

Captain Shaw, near the city of Toronto—Sowed in drills 20 inches apart, about the middle of June, after a dressing of farm-yard manure. Soil, a lightish loam; but the subsoil appeared wet, and the corp, both as to quantity and quality, had severely suffered thereby. The season had evidently been too unfavourable for the usual display of the Captain's skill and perseverance in root culture. Many of the bulbs were rapidly decaying, and distinguished by long necks. The produce was 1052 pounds, or 751 bushels per acre. That the inferiority of the quality and style of growth in this crop was owing to the peculiarity of the season, and not to the impurity of the seed, is in this instance most conclusive. Last year Captain Shaw's purple tops were well grown and sound. He had a considerable portion of old seed left, which has produced this season turnips inferior in size and quality with long necks, &c. Indeed, on wet lands in particular, this tendency has been obvious in other productions during the late remarkable season.

Mr. E. W. Thomson, Aikenshaw, York Township—Purple tops, sowed in drills 28 inches apart, with farm-yard manure. Soil light, dry, and sandy. Previous treatment liberal; bulbs of uniform, moderate size, well shaped, devoid of long shanks, and perfectly sound. Yield, 1019 pounds, or 728 bushels to the acre. Sown about the middle of June.

John Clayton, near the Humber, in the Township of Etobicoke.—Soil light and sandy; sown in drills only 18 inches asunder; no manure; had turnips last year on the same ground, well manured with farm-yard dung; bulbs small, with symptoms of decay.—Yield, 928 pounds, being equivalent to 663 bushels per acre.

William Wilson, Mimico, Township of Etobicoke.—Soil black vegetable matter, lying low and wet; the turnips, consequently, after such a season as the last, were generally unsound and rotting. Drills 22 inches apart, with no manure, after turnips last year with manure. Produce 720 pounds, or 515 bushels per acre.

In comparing the above mentioned facts, we award the first prize to Mr. Robert Conway; the second to Mr. William Lea; and the third to Mr. E. W. Thomson. Although the weight of Captain Shaw's was somewhat more than that of Mr. Thomson's, we are of opinion that the decidedly superior quality of the latter renders the crop more valuable either for the market, or for ordinary feeding purposes.

It was impossible to make this tour of inspection without being deeply impressed with the great benefits that draining produces on wet lands. The general culture of the crops we investigated, appeared in all cases far more uniform and thorough than results would seem to indicate—the difference being largely attributable to the different conditions of the soil in regard to heat and moisture. Even in dry seasons, land naturally or artificially drained, is found to pass the trying ordeal of a drought much better than wet; the large amount of moisture contained in atmospheric air in the driest weather, gets access to the roots of plants by means of the drains and the interstices of the soil.

Although the late season has not proved favourable to the healthy growth of root crops, we cannot conclude this brief sketch without expressing a conviction, after an experience of three successive years in a duty of this nature, that this important department of husbandry is surely progressing in these Townships, and we trust and believe, through the country generally. For it is in a high degree we must look to a more extensive and perfect culture of root crops for the sustentation of improved breeds of stock, which are essential to the advancement and profit of Canadian agriculture.

Respectfully submitted,

George Buckland.
James Fleming.

Telegraphic Improvements.—Edward Highton, C.E., of England, has just obtained a patent for, firstly, sending telegraphic messages *both* ways through one and the same wire, at the same instant, without interfering in any way with each other; secondly, for preventing the destruction of a wire in the sea or under ground; and, thirdly, for mending a decayed telegraphic wire in the ocean without raising it out of the mud.

Iron Cars.—Sheet-iron cars, cushioned inside, have been in use on the Baltimore Railroad for about five years, for freighting purposes, and in one instance one of these cars loaded with 80 barrels of flour, was precipitated down a steep embankment without doing it material damage.

Elk Breeding in New York.—A Cattaraugus paper says:—"We paid a flying visit to the Elk Park of L. D. Stratton, in Little Valley, last week. We perambulated the park, containing a hundred acres, with a strip of some four or six rods of clearing round the entire park, the centre being in the original forest state, in pursuit of the elk, in company with several gentlemen, and came up with a drove of nine which was really an interesting sight. They were quite tame, so much so that Mr. Stratton could call them up to him, and they eat salt from his hand. These nine are from the original pair of elk brought to Little Valley from the South-west. Mr. Stratton took his original pair of elk to the recent State Fair at Buffalo, procured a canvas, and exhibited them. He cleared $700 over and above the expenses, having actually taken a little over $1,000; and, at the close of the State Fair, Mr. Stratton sold his pair of elk for $1,000, to some Canadian gentlemen, who made the purchase for the purpose of exhibiting, and are to take them to England."

Charles Holman, youngest son of Orin Holman of Lancaster, Mass, died a few days ago from a bite of a spider. On Wednesday morning he complained of a pain in his mouth, which made it quite difficult for him to eat. Soon a considerable swelling was observed upon one side of his face, and this extending to the brain, ere long produced aberration, and at last mortification set in, and finally death followed.

AGRICULTURE—PAST AND PRESENT.

The growth of everything valuable is slow. A century is required to mature the time-defying oak, while other trees of less value mature in a few years. The pages of history record the triumphs of the warrior, the statesman, the philosopher, the sculptor, the poet and the architect—all of whom left imperishable monuments of their genius, which even yet excite admiration. The painters, the sculptors, the architects of the present day study the works of past ages,—are proud to imitate, and hardly dare hope to equal, much lsss excel the "masters" of antiquity. The agriculturist looks to the past in vain for knowledge to guide him in his avocation. He finds no Roman or Grecian models worthy of imitation. The rude Roman plough, harnessed to the oxen by the simplest contrivance imaginable, showed a lack of thought and invention, and only excites a smile. The agriculturist cannot look backward for his glory, but onwards and upwards. Light and knowledge are to be gained only by earnest thought and well-tried experiments. New facts are to be developed, new modes of culture proved useful, or discarded as unwise, new machines are to be devised to lighten labour and lessen the cost of producing the necessaries of life. A glorious career awaits the agriculturist of the present age, and he should be truly thankful that he lives in a day of improvement, of light and knowledge: honour awaits him, but it must be earned—fought for, laboured for—a clear active head and a strong arm may secure the prize.

In ancient times agriculture was considered honourable, for historians have recounted instances of warriors and statesmen engaged in this peaceful occupation. Cincinnatus when called to the head of the Roman nation was found at the plough; and if a little of the wisdom for which he was famous, had been exercised in improving that useful implement, his name might have been more honoured, and lasting benefits been conferred upon the community. But, in early times, as has been truly said, population bore but an insignificant proportion to the extent of inhabited country; so that men were not compelled then, as they are now, to cultivate infertile soils, or crop them so frequently, in order to obtain the necessaries of existence; they confined their simple operations to the rich alluvial land which nature had prepared ages before, in anticipation, as it were, of a helpless state of society, and which yielded its increase from the most imperfect cultivation. While, therefore, the philosophy, literature and fine arts of the ancients have formed the basis upon which those of modern times have been reared, the art of cultivating the soil has received little or nothing from ancient agriculture to which its present comparatively advanced state can be ascribed; that advancement is to be sought for, not among the relics of antiquity, but among the materials principally furnished by a generation scarcely yet passed away.

Had we sufficient space, it would be interesting to trace the progress of agriculture from the time that it first seemed to enter the minds of some men that it was susceptible of improvement—that it was not the better way to plough and sow exactly as their fathers had done. It was in 1534 that the first successful attempt was made in England to collect the scattered fragments of agricultural knowledge. At that time Sir Anthony Fitzherbert, published his "*Booke of Husbandrie.*" Although the author knew nothing about chemistry and its application to agriculture, nor of the rotation of crops, he did much good by pointing out prevailing bad practices, and suggesting improvements. He endeavored to impress upon his readers the truth that "a husbandman cannot thrive by his corne without cattelle, or by his cattelle without corne."

In 1580, Thomas Tusser, an agricultural poet published in verse "*Five Hundred Points of Good Husbandry.*" This work contained many valuable practical hints, and passed through several editions. The author mentions carrots, turnips and cabbages then recently introduced as kitchen herbs. From 1600 to 1650 several books on agriculture were published, among them "The whole art of Husbandry," by Barnaby Googe, and "The Improver Improved," by Blythe. Cromwell, himself a farmer, in early life was a munificent patron of agriculture, and Harttibb, an agricultural author received from him a pension, with instructions to devote his time to agricultural investigations. During the

next century many agricultural works were published, but nothing new or particularly valuable appeared until the time of Jethro Tull. He had observed in his travels that in the vineyards where no manure was used, but the ground kept constantly stirred that the vines grew well and produced abundant crops. After labor and reflection Tull laid it down as a general rule that crops would grow well on poor soils without manure, if the ground was kept thoroughly pulverized, and that the only advantage derived from manure was in the pulverization of the soil by fermentation, and that this could be done by tillage without manure. He therefore recommended drilling and horse-hoeing. Although wrong in theory, much good was done by the investigations and labours of Tull. To no one, taking the age in which he wrote into consideration, is agriculture more indebted for its subsequent advancement and present position.

Sir Humphrey Davy followed, and Liebig, giving to agriculture the benefit of their scientific investigations. So that now, although we have much to learn, we do not labour entirely in the dark. Every year new facts are developed and new theories formed. Ours is a day of progress, and he who does not strive to keep up with the times will find himself sadly in the rear.

LAYING FARM-YARD DUNG ON CLAY FALLOWS FOR WHEAT.

The preparation of clay lands for a succession of crops by the process of summer fallowing, which pulverizes the soil and removes all weeds and stones, reaches the condition of receiving farm-yard dung for manure in the end of August or during the month of September. Early operations are the most effectual, and the best performances get the land ready in August for the reception of lime and dung. The first article, in a pulverized condition, is spread evenly over the land, and harrowed into the ground by a double tine of the common-purpose harrows. The farm-yard is laid in small heaps on the land, spread by the hand forks evenly over the surface of the ground, and covered by one furrow of the plough. The dung may be carried in the fresh condition from the cattle yards, being the production of the latest store cattle, and from the soiling beasts that consume the green food, or it may have been placed in a heap on the field of land from the month of March to the time of use, and will have reached a partially, if not a half-rotten condition, when it is spread over the ground in August. The lumps of dung will often not be covered by the plough, and lie on the surface, being pushed before the coulter, and not falling into the bottom of the furrow. A lad or woman with a hand fork follows the plough, and throws the pieces of dung into the hollows, where they are covered immediately by the next furrow of ploughing. This provision is made against the loss by evaporation from exposure of dung on the surface of the ground; but the theory of loss from exposure does not yet hold a confirmed dominion among undoubted facts.

The common plough opens drills with one furrow at convenient distances for green crops, and on light soils the dung is well covered by one furrow of earth being laid over it. Clay lands for wheat are drilled in the same way by one furrow, the dung is spread along the hollows, and covered by splitting the ridglets with the plough. In this way the plough opens a drill in going the length of the field, and in returning covers a drill of dung by reversing the furrow. This mode covers the dung very completely, and exhibits the field in the form of drills; not highly raised, or widely formed, as for green crops, but flatly done, and executed for the sole purpose of covering the dung from exposure. A cross harrowing is required to level the ground when the land is seed-furrowed in October. The two drillings of one furrow are less labour than one ploughing, and cover the dung much better. Even the harrowing that is required before the seed-furrow, does not raise the expense to an equality with the ploughing of the dung into the ground.

The wet nature of moist clay lands prevents the carting of dung on the surface in October, and consequently, the manure must be applied at an earlier period, and the land ploughed again for the sowing of seed. Cases occur when the dung is applied in October; but chiefly on the grattans of beans and peas, and on some few clay lands of the driest nature. Few wheat soils admit the application of dung in October, unless the modern system of frequent draining has produced a dry condition to bear the necessary

cartage. Consequently the dung is covered by ploughing in August, or ln early September, and a seed-furrowing is done for sowing the seed in October.

The hitherto refrigeration of our globe from a state of expired combustion in a fiery mass, renders necessary the use of decomposing bodies as manures, to afford by decay the caloric to vegetables, and raise the temperature of the ground, and also to place bodies in quantity together in the ultimate elements at insensible distances, in order to produce the same results of caloric and temperature, by the mutual action of fusion and attrition. Hence there arises a most important consideration in what way, mode, or manner the articles of manure are to be applied, in order to afford caloric to the plants and temperature to the soil in the largest and most effectual manner that is possible.—Farm-yard dung buried in the cold clay ground can excite little action to raise the temperature of the soil—the quantity is too small to overcome the opposing resistance of clay and cold moisture, and the benefit is corresponding. Manure laid on the surface of the ground affords caloric in two ways; by sheltering from cold the vegetable growth, and by the residual decomposition of the substances sinking into and mixing with the surface ef the ground, and producing the usual effect of mixture and combination. Farm-yard dung will be best laid on young wheats as a top-dressing in February and March, by means of timber railways placed on the ground at regular distances, and moved to the required positions. On this railway there runs a light iron four-wheeled waggon, which receives the dung from the carts at the end of the field, conveys it along the railway, and the dung is thrown from it on each side over the land in the quantity allowed, and to the distance that is convenient to the strength of a farm. The dung is immediately spread over the surface of the ground, and most carefully broken into small pieces, in order to cover every inch of ground for the purpose of a close protection. This performance must be very carefully executed, as the effect mainly depends on its disposition. The vicissitudes of the weather in suns, rains, winds, frosts, and thaws, will destroy the matters of the dung, and exert a joint effect on the surface of the ground. In the usual dry season of sowing grass-seeds, the land is well harrowed, in order to mix the light alluvium with the remains of the dung, which will produce a most choice bed for the grass-seeds that are sown upon it, and pressed into a covering by an iron roll not less than a ton in weight. The harrowing produces an alluvium top-dressing for the wheat that exerts a most wonderful effect on its growth, and is regularly done in Poland as a part of wheat farming. The mixture of the dung with the fine earth in the present mode, raises a bed for the grass seeds that is not equalled in any other way, and the heavy roll presses all matters together with the wheat plants almost invisible among the raised and compressed earth of the surface. The growth is quick and rapid from this bed of favourable composition, and surprises every observation and experience; the grass seeds are delighted in the matrix of a most intimate comminution of soil that is so essential to their nature, and which is not obtained from the stale surface of autumn-sown wheat, and manured at that time. This advantage to the grass seeds is very large, and along with the superior benefit to the wheat crop, constitutes a mode of applying farm-yard dung that is much beyond the value of the common way during late summer or early autumn, which prevents the full action of the manure, by denying the opportunities that are necessary for the full development of its power. The cold of winter follows the winter application, the increasing warmth of the returning sun attends the use of the dung in the early spring, and these two very different elements confer a power of the utmost value and efficiency. It must be studied that all applications of manures are made under the best known circumstances to develope their power, and promote their action.

It has happened to the writer of this essay to have had a very extensive and largely varied experience in practical farming, both on turnip lands and clay soils; and the length of the practice gave many opportunities of observation and experience. The prepared heap of farm-yard dung having failed to complete the manuring of a field of clay fallow in the end of August, a quantity of fresh dung from the stable door was applied to cover the remnant of the ground, and it was strawy and rough beyond the power of being covered by the plough, consisting of dry straws, and dry fecæs of the horse. The dung lay exposed till October, when the land was seed-furrowed, and sown with wheat; the matters were better covered then than by the summer furrow, while the harrowing pulled into pieces, and spread the dung over the surface. In winter the ground was pretty well covered with fragments of dung, among which the wheat soon evinced a superiority that continued very visible till harvest, and the crop was

larger and thicker on the ground. The grass-seed being sown in April, the advantages are derived that have been mentioned, as arising from laying the dung on the surface of the ground. This casual experience confirmed the mode now recommended, of applying farm-yard dung, and it destroyed in no small degree the theory of damage to farm-yard dung by evaporation from exposure. This theory has been very justly doubted, though conviction requires a length of time to be entertained. There is also called into question the fermentation of dung in heaps, and the fresh condition showed greater, at least equal results. J. D.

JOHN JAMES AUDUBON, THE ORNITHOLOGIST.

There is not an American name more extensively known throughout the civilized world, nor one for which a higher respect is cherished among men of learning and science, than that of the distinguished Ornithologist Audubon, whose birth occurred on the 4th of May, 1780, in the city of New Orleans. His parents were French, and being blessed with the means, sent their boy to Paris to acquire his education in the best schools of that gay metropolis. After spending eight or ten years abroad, he returned to his native country, as the proper field in which to pursue those studies for which he had already acquired an over-mastering passion.

Ornithology and Entomology had long attracted the attention of young Audubon, and before he returned to America he had made considerable proficiency in these sciences, although the field of his observations was extremely narrow and unsatisfactory; but now his scope was unbounded and the material ample, and he resolved to give it a thorough investigation. As soon as he could put himself in a state of readiness, he commenced those indefatigable and hazardous labours which ended only with his life, and which have crowned his name with an imperishable halo of glory.

Audubon was one of the earliest pioneers of the Great West, and with knapsack slung, and his rifle, and net, and snares in his hand, he made the longest journeys across the broad prairies, and through the wide bottoms, counting no labour lost, and no hardship of any account, so that he could bag a new bird or insect. As early as 1810, we find him sailing down the upper Mississipi in a birch canoe, with his wife and one child, who shared his perils and his joy.

From that period his career was one of adventure, romantic incident and varied fortune. Hardly a region in the United States was left unvisited by his presence; and the most inaccessible haunts of Nature were disturbed by this adventurous and indefatigable Ornithologist, to whom a new discovery or a fresh experience, was only the incentive to greater ardour, and further efforts in his favourite department of science.

It was many years subsequent to this period that Audubon conceived the noble project of giving to the world a perfect history of all the feathered race in the United States. His project was on a scale commensurate with the magnificence of the subject, and was not completed until after a quarter of a century's hard labour. Without funds, and with bnt the promise of some patronage, he set himself to this great work of his life with more zeal and cheerfulness than he would have done to the acquisition of a fortune—counting no labour too much, and no pains or cost too great, so that he might gain one step in his great purpose. Those whose good fortune it was to become acquainted with him at this time, describe him as a man of marked appearance, original in his character, of childlike demeancur, entirely free from that savageness of manner so natural to one whose days are spent in the wilderness. Yet there was a fire in his piercing eye, and a spirit io his striking brow and erect mein, which evinced an unconquorable energy of purpose, and gave warrant of success in all the great plans of his life.

In 1824 he went to England, where, though unknown, and, at first, friendless, he soon became "the admired of all admirers." Says the *American Phrenological Journal*, "Men of genius—the Wilsons, the Roscoes, the Swainsons, recognized his lofty claims; learned societies extended to him the warm and willing hand of friendship; the houses of the nobility were opened to him; wherever he went, the solitary, unfriended American woodsman was the conspicuous object of a wide remark and love." In 1831, at Edinburgh he put forth his first volume of Ornithological Biography. The striking superiority of this soon procured him subscribers for the remainder of the work. In

France he received like honours, but soon returned to America, which he explored from Florida to Labrador, expanding the Biography to five volumes. At length the "Birds of America" was completed. The elegance of the engraving, the richness and delicacy, as well as the life-likeness of the colouring, took the world by surprise, and forever established the fame of Audubon as the great American Ornithologist.

As an instance of the wonderful perseverance of Mr. Audubon, it is related that having wandered and tolled for years to get accurate representations of American birds, he found that two Norway rats had in a single night destroyed two hundred of his original drawings, containing the form of more than a thousand inhabitants of the air.—All were gone, except a few bits of gnawed paper, upon which the marauding rascals had reared a family of their young. "The burning heat," says the noble-hearted sufferer, "which instantly rushed through my brain, was too great to be endured, without affecting the whole of my nervous system. I slept not for several nights, and the days passed like days of obltvion, until the animal powers being again recalled into action, through the strength of my constitution, I took up my gun, my note-book and my pencils, and went forward to the woods as gayly as if nothing had happened." He went forth, and in less than three years had his portfolio filled.

For the last ten or twelve years of his life, Audubon reposed upon his laurels, and in his quiet little home, near the city of New York, enjoyed the only repose he ever knew. Satisfied to have around him a few choice spirits, he did not mingle much in society, and to the world he has been known only through the results of his labours. Here he died in peace on the 27th of January, 1851, aged seventy-one years.

THE SICKLE, THE SCYTHE, THE REAPING MACHINE.

In making a comparison between cutting grain by the sickle and by the reaping machine, we have been in the habit of regarding it chiefly as a question of expense; now, however, we are forced to look at it in another light: we must view it more as a question of expediency and of necessity. Our corn must be cut down and harvested—we cannot get sufficient hands to do it for love or money—what means must we adopt to attain our object? It is calculated that three scythemen, with their followers, will, on an average, cut, bind. and stock 4¾ imperial acres in the day. To perform the same work with the sickle eighteen people will be required, with the Hainault scythe twelve, and with the reaping machine seven. Now these people are distributed in the following manner:—

	Women reaping gathering, &c.	Men cutting.	Men binding.	Men at machine.	Child at rake.
Sickle,....................	15	....	3	....	....
Scythe, ...	3	3	3	....	1
Hainault Scythe, ...	9	....	3	....	....
Reaping Machine,......	3	....	3	1	....

As the greatest number of hands is required for the sickle, it is evident that a general deficiency will be felt by those most who use it, while a deficiency in the number of men usually employed as scythemen and bandsters will be felt by those most who use the scythe. But of the two there is no doubt that emigration at present will cause the greatest inconvenience to the former; for, though there may be a deficiency in men for bandsters, this evil can be in some meaasure remedied by teaching others to do it, and by farmers being satisfied with an inferior class of work. We would, therefore, advise all whose crops are not too much lodged or twisted to endeavour to reduce their harvest expenses by using the scythe, which will, perhaps, at the same time, relieve them of no little anxiety if people are scarce, and reduce the risk of having a large breadth of crop ready to be cut, and no person to do it.

Of all the different modes of reaping however, the greatest saving of hands is that obtained from the use of the reaping machine. It is true we cannot expect to have all our crops cut by it in its present state, but by the use of it and the scythe very few more people than those ordinarily employed on the farm would be required during harvest,

which every farmer must admit would be a great advantage. The reasons for the use of machines are—1st, All our corn crops come to maturity at present nearly at the same time. 2nd, Our country laborers are reduced in number. 3rd, There is now a much greater quantity of corn to cut down. 4th, Harvest work has become more expensive." A committee appointed by the central Society of Agriculture of the Seine-Inferieure to report on the subject, gave it as their verdict that "the automaton machine of Aitken and Wright was preferable to all other reaping machines."—*Abridged from the Journal of Agriculture.*

SKILL IN EVERYTHING.

The science of agriculture is made up of a whole group of sciences, whose theory and applications the farmer must understand and practice, if he would be master of his profession.

He must know something of Chemistry, to understand the treatment of the soil, and the composting and use of manures. He must understand Botany, to manage all the vegetables, grains and fruits which he grows. He needs Physiology and Medicine, to treat his animals well in health and sickness. If he builds a house or a barn, a knowledge of Architecture will stand him in good stead. If he has a threshing machine, or mower, he needs some acquaintance with the principles of motive power. In the construction of drains, he must apply the principles of Hydrostatics, and to some extent of Hydraulics too

We give these facts as illustrations of our meaning, not by any means as exhausting what might properly be said on this matter. The truth is, the farmer must be a bit of a genius in almost everything, if he would stand at the head of his profession.

It was not our purpose, however, when we penned the heading of this article, to say much on these grave themes. It was an humbler topic that tempted our pen.

We wish to exhort our readers to become well skilled in all the minor operations which the management of the farm and garden involves. What we mean, two examples will show.

Mr. A. is a farmer, and *nothing else.* If a strap breaks in a harness, he sends two miles to have it mended. If a horse's leg is bruised, he will not treat it himself, but sends for a farrier. His bee-hives need repairing, and he hires a carpenter to do what a very little skill would enable him to do for himself. He cannot even mend an old sled, or repair a broken-backed rake, without foreign aid. He is a good farmer. He keeps his implements in good condition too, but it is at great expense.

Mr. B. is another sort of man. He is as good a farmer as Mr. A. But he is limber and elastic too. All the little jobs about the house he does himself, or teaches his boys to do. He can roof a house; he can hoop a barrel, or he can dig and wall a well. He can build a sled, put a spoke into a wagon-wheel, graft or bud a fruit tree, or make a new harness out of an old one, with an awl, a waxed end, and a bit of leather. If he attends a fair, he sees the "point" in the improvements that are on exhibition, and he can apply them to his own work without any further aid.

We will go but little further. Our readers see what we are at. We hope they will themselves be, and bring up their sons to be, men who will have some skill in everything.

Here are some reasons for this recommendation, which we will give at the risk of making this article a little longer:

1. Almost every farmer will need this kind of skill. Not one in a thousand will live so near a village where there are skilled mechanics, as to be able to use their aid at all times. Fewer still will farm on so large a scale as to embrace all these trades in the force employed on their own grounds. He will need some skill himself.

2. Such skill renders its possessor more independent. The sense of such independence is a great comfort. Its exercise is sometimes a great advantage.

3. It saves a great amount of time and money. We knew a man who lost a whole day's time, and several dollars in money in the following way:—A part of the harness was taken away. He had not enough tact and skill to repair it with a piece of a rein or halter.

4. It will develop talent in many persons, where it now slumbers useless and powerless. The exerciees in mechanical skill furnished by the farm, have awakened the mind of many a youth, who has ripened into a noble and skillful mechanic or artist.

But we have said enough. Give the boys and girls a good chance to cultivate their powers in a practical way. You can never predict what treasures you will find.—*Ohio Farmer.*

STABLE MANURE—DOES IT PAY TO PURCHASE?

This depends entirely upon circumstances. If it is not sold too high, it certainly may, and at present prices in the immediate vicinity of cities and large towns, where market gardening on a large scale is an object, and where every article produced by cultivation finds a ready sale and brings a quick return in cash at high prices, there can be no doubt but it pays well.

But in the country, (and the country imitates the city in more things than one, else city prices for manure had never been adopted,) we very much question whether the farmer, who must wait until the market of his produce comes round in a natural and often a somewhat circuitous channel, and where the profits of the well-tilled acre must be less than in the immediate vicinity of towns, a better and more economical way of fertilizing can be adopted.

No farmer thinks of applying less than twelve loads of manure to an acre, and often puts on a much greater quantity. So then, the lowest rate we can estimate upon to enrich that acre, is twelve dollars. Now the question is, are there no means by which that acre can be made equally fertile at a less expense?

There are but few farms that do not furnish natural facilities for manure making beyond the stock that is wintered upon them, while many are blessed with one of the best of all deposits, the muck bed, to favour the object. Wherever this is found, no practical experiments can for a moment doubt but that he can manufacture manure for less than one half the price now asked by those who have manure to sell.

The first expense is hauling out the muck, and this must depend upon the distance it is taken to the compost heaps, which of course can be no greater than drawing one-half of the manure purchased, so that the cartage, taken as a whole, may safely set one against the other.

All that prevents the immediate use of muck, is the coldness and acidity it acquires from its continually being in water. These may be removed by an exposure to the atmosphere, frequently turned, or by adding correctives, such as lime, ashes or gypsum, and its value is inceased in proportion as these substances are added, especially the two last.

Now we insist upon it, that for root crops and top-dressing, a load of well-prepared meadow or swamp muck is worth more than a load of stable manure, such as is usually sold. We claim it from the fact that it contains so large a portion of fibre, that will be long in going to decay, and yet its decay will not only furnish a natural and healthful food for plants, but will keep the earth in a porous condition so that the roots of plants may extend themselves, and the air and the dews may exert their healthful influence upon them.

On dry sandy or gravelly soils the effect of barn yard or stable manures is soon lost It was formerly contended that these soils were so porous the strength of the manure passed down. Evaporation probably had something to do in this matter. Where composts, of which muck is the principal ingredient, are used on such soils, the evil is reme. died by its giving tenacity, and what is better, it yields its richness only as plants require it. Its effect is therefore more durable, as well as more strongly marked.

On loamy lands where clay forms an essential part, it restores an important quality lost by continued cropping, to wit, vegetable matter, which gives all new lands, in a great measure their fertility. On such lands its effect is visible twice as long as that of stable manure.

As a top-dressing for meadows, it performs a double service. Every farmer knows by his observations that the roots of grass, after one or two seasons, become exposed more or less above the surface. The frost heaves them, and the rains wash the loose soil away. Muck fills these vacant places with a durable protective power, and at the same time furnishes food for the plant. What untold wealth its use will give the farmer, and this at a cheap and independent rate!

W. B.

PROCESS OF MAKING ICE IN THE EAST INDIES.

Natural ice is never seen in the warmest parts of that country. To procure ice by artificial means, they dig, on a large open plain, not far from Calcutta, three or four pits about thirty feet square, and two feet deep each, the bottom of which they cover about eight inches or a foot thick with sugar cane or the stems of the large Indian corn, dried. On this bed are placed, in rows, a number of small, shallow, unglazed earthen pans, formed of a very porous earth, a quarter of an inch thick, and about an inch and a quarter deep, which, at the dusk of evening, they fill with soft water that has been boiled In the morning before sunrise, the ice makers attend the pits, and collect what is frozen in baskets, which they convey to the place of preservation. This is generally prepared on some high, dry situation by sinking a pit fourteen or fifteen feet deep, lining it first with straw, and then with a coarse kind of blanketing. The ice is deposited in this pit, and beat down with rammers, till its own accumulated cold again freezes it, and forms one solid mass. The mouth of the pit is well secured from the exterior air with straw and blankets, and a thatched roof is thrown over the whole The quantity of ice formed by the method above described depends on a light atmosphere, and clear serene weather. Three hundred persons are employed in this operation in one place.

At first sight this curious process may appear to be an effect of evaporation; but this is not the case; for it is remarkable that it is essential to its success that the straw in which the vessels are placed should be dry, whereas if evaporation were concerned in the congelation, wetting the straw would promote it. When the straw becomes wet by accident, it is obliged to be replaced by dry straw.

The earth is continually losing heat by radiation, and it loses most on clear, starlight nights, when there are no clouds to interscept and send back the rays of heat. The straw like all filamentous substances, is a good radiator of caloric, and it is in consequence of the heat that is thus given out by it into space on clear nights that the ice is formed. When the weather is windy and cloudy the effect does not take place.—*American Druggists' Circular.*

The Iron Trade.—As to the growth of American iron manufactures, the *Pennsylvanian* says:—

"Since 1848, the consumption of that article in the United States has augmented in an unprecedented manner. The consumption of foreign iron, and manufactures of iron, which previous to 1848 never reached, in any one year, the value of $9,000,000, amounted in 1850 to $15,600,000; in 1856 to nearly $20,000,000. On the other hand, the domestic production of pig iron made very considerable progress. From 1852, when it amounted to 500,000 tons, it rose to 1,000,000 tons in 1856. The domestic manufacture of rail-road iron has as yet only reached about one-half of our annual requirements. But, considering that eleven years ago we made no rails at all, this result must be regarded as exceedingly encouraging. The value of domestic manufactures of wrought iron of every description amounted in 1840 to $12,800,000; in 1850 to $22,600,000; in 1855 to $28,300,000."

Steam Wagon.—In the course of the present week it is expected that the steam wagon in course of costruction at Sacramento City will be ready for the trial trip. As we have already stated, a joint stock company has been organized for the construction of several of these wagons, to be placed on different routes in various parts of the State. Every one who has seen the operation of the model steam wagon must have been convinced of its utility.—*San Francisco Globe, July* 20.

A Novel Combat.—We witnessed an interesting combat between a fox and a snow-goose, and concluded the latter was the victor from the advantage which flight gave it over his enemy, who sought the hills, the other darting with great impetuoeity and making furious onslaughts on him from time to time to complete his victory.—*Dr. Armstrong's Personal Narrative of the Discovery of the North West Passage.*

Another Attempt at Tea Culture.—Mr. Fortune, who has been employed for a number of years in China, by the East India Company, has been requested by the Patent Office to make selections of the tea plant and other seeds for introducing into the United States. He will probably accompany his selections to this country, for the purpose of selecting the proper localities in which to commence these experiments.

More than 60,000 of the Indian population of Bolivia have died of the yellow fever.

KYLOE CATTLE.

Scotland possesses only two varieties of cattle that have been settled into breeds, the West Highlands and of Galloway, denominated the Argyle and Galloway breeds. The former exist in the largest size in the county of Argyle, as that country affords the best maintenance throughout the year. The size is lessened over the northern counties of the mainland, and the general conformation is impaired; the bulk is further diminished in the Hebridean Islands, and further still in the Orkney and Shetland Islands, which afford the coarsest animals, and those of the Hebrides are more thriving and symmetrical. The Argyle breed and the West Highland cattle, the Kyloes and the cattle of the Western and Northern Islands—these distinctions are the modern understanding of the terms.

These cattle are colored in very many shades and varieties, black being the favorite and prevailing colour, which is much intermixed with white, red, dun, and brindled. The horns are long, wide and tapering, and in accordance with the size of the animal. The Argyle cattle have the largest horns; the Hebridean Kyloe has the finest spear horn, clear glittering and pointed; while the Northern Islands show a coarse and stunted horn, short and proportional to the animal frames. The eye is fierce and the character mischievous, habits restless and unruly, body short, paunch deep, hide thick, flesh very good, and finely marbled with veins of fat. The maturity is regulated by the maintenance that is afforded the age of six years is attained before a fattened carcase is produced; four years in the native country, and two in the lowland treatment.

It is well known that the Galloway cattle afforded the material service of the short-horn breed, hence called the "alloy," in reproach of the coarse mixture that was introduced into the Yorkshire cattle. Passing over that point at present, as unconnected with our present subject, the Galloway cattle have been much improved among themselves by judicious selections, and much yet remains to be done. Vast quantities of these animals are transported to the southern turnip counties, and are much esteemed for beef and profit. But the old faults still remain, and in abundance.

The Kyloe cattle, properly so called, are a most motley production in colour, shape and quality, by a promiscuous breeding without any care or attention. The mountains and the open range of hill grounds do not afford the benefit of enclosures in the adaptation and restriction of the sexual intercourse, which is consequently altogether unconfined, and spreads into numberless descents and endless pedigrees. Good and bad animals are thus produced in accidental varieties; the latter always predominates and the former bear the usual proportion to the efforts of nature's course. This unrestricted breeding has gone on from the earliest records, and also the careless provision of winter food, on which the whole success depends of Highland farming with cattle or sheep. But the most unfavorable circumstances of situation do not prevent the selection for the purpose of breeding, of the best shape, and forms that are produced by accident, and from which every refinement of animals has progressed. It is not at all advocated here that the size of the Kyloe cattle be increased or any cross be introduced by foreign blood; the present bulk of the animal is very ample for the maintenance, and any mixture of blood would disarrange the long-established descent, and introduce an irretrievable confusion. Such mixtures of species and varieties in animals continue for a time, gradually degenerate into numberless branches, and at last are wholly extinguished. The true way is to improve cattle among themselves, by selecting the best specimens for breeding, and carefully rejecting all bad ones, and to continue in this course most obstinately; but not to produce a size or quality that is beyond the circumstances of use. Abundance of materials exist, and only want the application, even under the ordinary management of Kyloe cattle.

Our experience and acquaintance having been very considerable among the Kyloe cattle, our attention was very naturally directed to their qualities, habits, and varieties. It appeared that very valuable distinct breeds may be produced by a careful selection from the very heterogeneous multitude—a glossy black variety, that comes at present from the Western Islands, with white colours on the face, breast, and flanks, not largely intermingled, but pleasingly patched; a brindled variety, with little or no white colour on the body, at least very sparingly, the red brindles being of a very deep dye; and a breed wholly dun in colour, without the least mixture of any other stain, and the coat of hair thick and curly. This dun colour abounds among all the Highland cattle of Scotland, and always indicates a hardiness and vigorous constitution, and a propensity to fatten, in every animal organization. These two propensities cannot be surpassed in any

breed of cattle; they form the strongest stamina of existence, and are certain proofs of superiority. A most choice breed of Kyloes would be propagated by this selection of the dun colour, hardy and vigorous, fleshy and symmetrical, with a coat of hair close and curly, with a hide elastic, and mellow in the thickness. Mr. Quartly's Devon cattle may be well quoted as an example of this curly coat of hair, and possess all the qualities above-mentioned, with an acknowledged superiority of the points of excellence. Our judgment has ever most highly approved these Devon cattle.

A herd of dun Kyloe cattle would be most picturesque and pleasing to the fancy, besides inheriting the very best qualities of excellence. A similar valuable breed of Welsh ponies may be propagated from the stray productions of the dun colour that are found on the mountains of the Principality. The uniform colour of animals ever carries along with it a combination of qualities that do not attend in heterogeneous colouring.

A dark-red brindled breed of Kyloe, without the least mixture of any other colour, would be valuable; or the dun variety equally beautiful, but wanting the curly coat of hair, and more resembling the cattle of the Lowlands.

Heading Cabbages in Winter.—Select a suitable spot in a garden or field, six feet in width, of any desired length, free from standing water; run a furrow the proposed length of your bed, and throw a back furrow upon it. The double furrow will form a *side wall* of your cabbage house. In the trench stand your cabbages on their roots leaning to the furrow at an angle of 40 to 45 deg. Let the next furrow be thrown upon the roots and stalks of the cabbages, and another row be placed in the trench made by the second furrow; thus proceed until your six feet of width is planted; then let the last furrow be a double one—making the other side wall about the height of the cabbage head. Through the whole length of the middle of the patch lay rails lengthwise, supported by crutches, at a height of about two feet from the cabbages; this will form the ridge of the cabbage house. Lay light brush-wood from the side walls to the ridge pole; then throw on salt hay, or bog hay, or straw, two inches in depth. As the cold weather advances, throw on dirt until you have a depth of say six or eight inches, or even more when the winters are severe, and finally spank the dirt roof with the flat of the spade until it will shed the rain. Fill up the two ends of your house in the same manner, leaving only small air holes of a foot or two in diameter, which may be closed with hay. The length of the house should be on a north and south line.

In the early spring you will find your most unpromising plants have heads of their own, and all be thriving and fresh. Try it at once, and you'll try it ever afterwards.—*Exchange.*

Portuguese Cattle.—The King of Portugal has recently sent over to England a present of cattle of a very peculiar breed, to Queen Victoria, consisting of a bull, two heifers, and a bull calf.—The animals are of the most perfect symmetry, and very diminutive, standing scarcely 40 inches high. They are of a dun color, and in fine condition. The cows are very docile; but the bull, on being driven from the station to Prince Albert's model farm at Frogmore, where they are now installed, exhibited a disposition rather the reverse of that of his companions, by tossing an unfortunate donkey about his own size, which happened to come in his way. These Lilliputian animals much resemble the Alderney or Jersey breed, but appear to be scarcely more than half the size.—*Exchange.*

To Become Unhappy.—In the first place, if you want to be miserable, be selfish. Think all the time of yourself, and of your own things. Don't care about anybody else. Have no feeling for any one but yourself. Never think of enjoying the satisfaction of seeing others happy; but the rather, if you see a smiling face, be jealous, lest another should enjoy what you have not. Envy every one who is better off in any respect than yourself; think unkindly towards them, and speak slightly of them. Be constantly afraid lest some one should encroach upon your rights; be watchful against it, and if any one comes near your things snap at him like a mad dog. Contend earnestly for everything that is your own, though it may not be worth a pin; for your "rights" are just asmuch concerned as if it were a pound of gold. Never yield a point. Be very sensitive, and take everything that is said to you in playfulness in the most serious manner. Be jealous of your friends, lest they should not think enough of you. And if at any time they should seem to neglect you, put the worst construction upon their conduct you can.

SPECTACLES.

These aids to failing sight were first used about the latter end of the thirteenth century and their invention is ascribed to Roger Bacon. Sir David Brewster says:—"Persons who have enjoyed distinct and comfortable vision in early life, it is remarked, are the most likely to appreciate the benefit to be derived from glasses. Between the ages of thirty or forty, they begin to experience a change in sight, During the progress of this alteration, much inconvenience is experienced, as no spectacles seem to be servicable in giving correct vision. Happily, however, two or three months ends this difficulty, and as soon as the alteration is complete, distinct and comfortable vision is at once obtained by the use of well selected glasses of a convex figure. During this transition state it is important that the eyes should be subjected to no severe strain, and great regard should be paid to the general health.

The material of spectacle lenses should be glass, of a very slow dispersive power or better still of rock crystal. They should be as thin as practicable. To correct a common error in the manufacture of lenses, by which the distance between the centres of the lenses is equal to the distance between the pupils of the eyes, the following is given:—'Draw on paper an isoceles triangle the two sides of which are equal to the distance of each pupil from the point to be seen distinctly; while the third side or base is equal to the distance between the pupils when the eye view that point. Then set off on each side of the triangle, from each end of the base, the distance of the centre of lenses or their frames from the pupil, and the distance of these points will be the distance of the centres of the lenses required.

The long-sighted persons will generally, for ten or twelve years, require glasses only for reading or work done by hands; but as life advances other spectacles will be needed for objects at greater distances, and it will be of great advantage to have two or three pairs of different local distances. It is a very incorrect notion that it is prudent to avoid the use of artificial helps to the eyes as long as possible.

The human eye is too delicate a structure to bear continued strain without injury, and the true rule is to commence the use of glasses as soon as we can see better with than without them."

Bad Effects of Grass on Colts.—When horses are turned out to grass in the spring of the year, the succulent nature of the food causes them to purge, often to a great extent; this is considered by many persons a most desirable event—a great misconception. The herbs are overcharged with sap and moisture, of a crude acrimonious nature, to such an extent that all cannot be taken up by the organs designed for the secretion of urine, or by absorbent vessels of the body; the superfluous fluid therefore passes off through the intestines with the indigestible particles of food, and thus the watery faces are thrown off. Flatulent colic or gripes is a frequent attendant. The system is deranged; but the mischief does not terminate here. If the purging is continued, constitutional relaxation of the bowels is established, very deliberating to the animal, and often difficult to control. I am so decidely opposed to unrestricted allowance of luxuriant grass to horses at any age, that nothing could induce me to give it to them. After the second year, hay should form a considerable portion of the daily food in summer to every animal intended for riding or driving. So says the *Mark Lane Express*, an English agricultural journal of high character.

Good Advice for Loafers.—A chap in this city, who was bred to the trade of a carpenter, but who has abandoned that calling for a gentleman loafer, because it is not "genteel," called on a female acquaintance the other evening. During his stay he complained of a lack of exercise and a want of companionship. "I am dying," said he, "of enuni; I wish you would find me a first rate companion, with whom I can while away my time." "I know of one, just the one you used," she replied. "Who's that?" he asked. "*Jack-plane*," was the cool and wicked response. The fellow suddenly conceived that he felt a flea in his ear, and left to consult an artist, aud has not called to see his plane-talking female adviser since.—*Lowell News*.

Corn Fritters.—One teacupful of milk, eggs, one pint of green corn grated, a little salt, and as much flour as will form a batter, beat the eggs, the yolks and whites separate. To the yolks of the eggs add the corn, salt, milk and flour enough to form a batter, beat the whole very hard, then stir in the whites, and drop in the batter, a spoonful at a time, into hot lard, and fry them on both sides of a light brown color.

DOES SUNSHINE TEND TO EXTINGUISH FIRE?

The common opinion that the sun shining on a fire tends to extinguish it, and that consequently the embers must be shaded, if we would preserve them alive in a fire place, was made the subject of experiment in the year 1825 by Dr. Thomas McKeever, of England, and the results seemed to show a real foundation for the opinion that solar light does actually retard the process of combustion. These results were copied by the contemporary scientific journals, and even the great German chemist, Leopold Gemelin, in his *Hand-book of Chemistry*, announces Dr. McKeever's conclusions, without expressing any misgivings in relation to their accuracy. Sunshine is an agent which is certainly capable of producing very remarkable effects; but the disagreement of this with other facts, has recently led Dr. John LeConte. Professor of Natural Philosophy in the South Carolina College, to repeat the experiments of McKeever, but using greater care; and the results obtained, as detailed by him at the late meeting at Montreal, tend to overthrow the idea, and prove that light has no influence whatever on the rate of combustion.

The fire employed in both the sets of experiments was simply a wax candle. McKeever found it to burn about 12 per cent faster in the dark; but LeConte finds the light of the sun, even when concentrated by a large lens produces no effect except by heating. If the air in the dark be heated to the same extent, and the air in each case be kept equally quiet. the candle burns at precisely the same rate. McKeever's experiments indicated that the candle burned from 5 to 11 per cent faster in the dark than in common sunshine. He supposed that the chemical rays exercised a deoxidizing power which, to some extent, interfered with the rapid oxydation of the combustible matter, and by trying the candle in different parts of the colored spectrum (produced by decomposing a ray of light in passing it through a prism,) his experiments appeared to indicate that a taper burned more rapidly in the red than in the violet extremity of the solar spectrum.

The whole subject cannot as yet be considered definitely settled, as the recent paper is regarded as merely preliminary to a more thorough experimental investigation, which Dr. LeConte proposes to undertake during the next twelve months. It is obvious that these researches have a practical bearing.

An Open Winter is predicted by our exchanges, both East and West. Some aver that the appearance of robins in large numbers during the warm days of Nov., indicates an open, mild winter. A Chiago paper says that Nature has demonstrated the fact that the coming winter will be mild, by covering the ears of Indian corn with very thin husks this year—furnishing them, indeed, nearly "nothing to wear"—whereas they were abundantly clothed the two preceding seasons! Well, we trust the augury is correct—for a mild winter will not only prove a God-send to the suffering poor of our cities and villages, but an oasis to the farmers and their flocks and herds over a large extent of country.

Natural Hieroglyphics.—Grand animals trod this globe in hundreds of thousands, for thousand of years, and left their skeletons behind; and the geologist uncovers their strange forms from the ice gravel of Russia, the mud of Pampas, and the gypsum of Montmartre, and learns to decipher their history, as Rawlinson interpreted the cuneiform inscriptions of Babylon and Nineveh, not passage by passage and line by line, but letter by letter, bone by bone, tooth by tooth, and stratum by stratum, till the disinterred skeletons became living witnesses, and the bygone history of myriads of past ages stand forth revealed.—*Stones of the Valley.*

The Atlantic Cable.—Active preparations are making to lay the Atlantic cable next June. Four hundred additional miles of cable have been ordered, and if the effort to recover the 340 miles now submerged should be succesful, that amount also will be added, so that the length of the cable will be nearly 3,000 miles. The British Government has signified its intention to detach two vessels from the navy next year to assist in the work, and it is presumed that the American Government will also repeat the favor of last year.

Farmers note This.—In a cloudy morning, it is a matter of importance to the farmer to know whether it will be sunshiny or showery in the afternoon. If the ants have cleared their holes nicely, and piled the dirt up high, it seldom fails to bring a clear day to the farmer.—Spider webs will be very numerous about the tops of the grass and grain, some cloudy mornings; and fifty years' observation has shown that those little weather-guessers seldom fail in their predictions of a fair day.

THE PRESSURE OF WATER.

Water exerts the pressure caused by its own weight and that of the air above it, equally in all directions; and on this principle depends the hydraulic press—one of the most useful applications of a philosophical principle known in modern times. The direction of the pressure is not equal in all directions, but is controlled, in a great measure, by the shape of the containing vessel, as, for example, in a round cup having a flat bottom, the pressure is equal and greatest over the whole base, and gradually diminishes as it ascends the sides, and so in all regular figures. In a bottle having a long narrow neck, the pressure is greatest on the base, and then on the semi-circular portion where the bottle bugles out.

When constructing a canal, or water course, the sides should incline from the base outward, because then, the pressure will be at right angles with the sides, and so exert its force on the earth ; whereas, should the sides be perpendicular, the pressure would be a direct thrust against it, and it would require so much stronger embankment to prevent the water forcing its way through. It is advisable also, to form the bottom inclined towards the centre, or in a semi-circular form.

In the case of a dam to stay the course of a long current of water, or to form the head of a mill pool, the form to be preferred is a segment of a circle from side to side, and widening from the top downwards ; but should the river or stream be too wide for this method to be adopted, then a straight one can be built, placed at an angle with the course of the stream—like the one on the Schuylkill, at the Fairmount Waterworks—that it may serve to break the force of the stream. If a V-shaped one be thought the best, the apex of the V must be placed against the course of the stream, and not with it ; or, in other words, the outside of the letter must form the dam, and not the inside.

Mammoth Forest.—From the *California Farmer* we learn that a grove of mammoth trees has been discovered in Yosemite valley. The first tree that was measured was eighty feet in circumference three and a half feet from the ground ; another tree was ninety feet in circumference at the same distance from the ground, while close to the roots it was one hundred and two feet round it, and it was three hundred feet high. The number of trees measured was one hundred and fifty-five, and they are about half the group ; none were less than forty feet in circumference and there was one hundred over fifty feet. The largest tree now lies upon the ground ; it is charred, and its heavy bark is gone, and yet it measures thirty-three feet in diameter, or one hundred feet in circumference, and must have been four hundred feet high. The *Farmer* concludes by saying :—" This we believe to be the largest tree yet discovered ; and this forest we claim as the Parent Forest of the world."

Sugar Maples.—The New York *Tribune* has published several articles setting forth the importance of the soft maple as an ornamental and valuable tree in other respects, and also as a sugar-producing tree. In a late issue it presents the following, from an experienced sugar maker in Vermont : —

" The flow of sap from this variety of the maple is considerably larger than the variety known as sugar or rock maple—probably double in quantity. But it does not contain more than half the sacharine quantity *per gallon* contained by the sap of the other variety. Sugar can be made from the soft maple sap, and also from the sap of the yellow birch (which flows in still more plentiful amount) ; but the difficulty is that so much more fuel is required to reduce the sap to sugar than is required with that syrup derived from the sugar maple, that it will not pay the cost."

In addition to this difficulty, it is understood that soft maple and birch sap will not granulate into sugar, but will, like the juice of the *Sorgho Sucre*, remain a simple cheap syrup or molasses.

Statistics of Consumption.—Medical statistics appear to prove that consumption, where prevalent, originates as often in summer as in winter, and the best authorities declare that it is more common in hot than in cold climates. There is more consumptions in the Tropical Indies, both East and West, than in the almost artic Canadas. The number of the British troops attacked with this disease in Jamaica is annually twelve in one thousand, while in Canada it is only about six. The British goverment have accordingly resolved upon sending their consumptive soldiers to a cold climate in preference to a warm one.

LARGE EXPERIMENTS WITH THE CHINESE SUGAR CANE.

Messrs. L. Tucker & Son.—In your sheet under date of 15th Oct., I see several reports of trials with the sugar cane. Allow me to trouble you with another. Having planted several acres of the Sorghum I procured from Hedges & Free of Cincinnatti, a cane mill with three rollers 32 inches long by 11 inches diameter. Pans and other arrangements, which a novice might deem sufficient, were added, and we waited for the maturing of the cane.

Sept. 14th, we made our first trial. Cut and ground one acre by measurement. The per cent. of juice expressed from the cane by the mill was a trifle over fifty by weight. A load of cane, as it averaged when cut, gave one gallon of juice to eleven canes, and one gallon of fair syrup to eleven of juice. The cane was but early in blossom. The yield per acre was precisely 100 gallons.

This trial consumed two days. We then went into the field and spent one week in stripping cane.

Sept. 23rd, resumed grinding. Found that our cane increased very rapidly in its richness. The average yeid of syrup to juice, was now one to eight, and per acre 135 gallons of thick syrup, and improved in taste over the former. This trial consumed four and a-half days, and three acres of cane.

Oct. 7th, we resumed our experiments. The seed was nearly and quite ripe. The improvement in the quality of juice surprised us all. One gallon of syrup, thick and smooth like honey, to six and one half of juice was now the result. The yield was one hundred sixty-two gallons per acre with two acres manufactured. R. J. Wilcox

Sheffield, Bureau Co., Ill., Oct., 1857.

MUSIC OF SHOP AND FARM LABOUR.

BY MRS. FRANCIS D. GAGE.

The banging of the hammer,
The whirling of the plane,
The crashing of the busy saw,
The creaking of the crane,
The ringing of the anvil,
The grating of the drill,
The clattering of the turning lathe.
The whirring of the mill,
The buzzing of the spindle,
The rattling of the loom,
The puffing of the engine,
The fan's continuous boom,
The clipping of the tailor's shears,
The driving of the awl—
These sounds of honest industry,
I love—I love them all.

The clicking of the magic type.
The earnest talk of men,
The toiling of the giant press,
The scratching of the pen,
The tapping of the yard stick,
The tinkling of the scales,
The whistling of the needle
(When no bright cheek it pales,)
The humming of the cooking stove.
The surging of the broom,
The pattering feet of childhood,
The housewife's busy hum,
The buzzing of the scholars,
The teacher's kindly call—
These sounds of active industry
I love—I love them all.

I love the ploughman's whistle,
The reaper's cheerful song,
The drover's oft repeated shout,
Spurring his stock along;
The bustle of the market man
As he hies him to the town;
The halloa from the tree-top,
As the ripened fruit comes down;
The busy sound of threshers,
That clean the ripened grain;
The husker's joke and catch of glee
'Neath the moonlight on the plain;
The kind voice of the herdsman,
The shepherds gentle call—
These sounds of pleasant industry
I love—I love them all.

Oh, there's a good in labour,
If we labour but aright,
That gives vigor to the day-time,
And sweeter sleep at night;
A good that bringeth pleasure,
Even to the toiling hours;
For duty cheers the spirit,
As dew revives the flowers.
Then say not that Jehovah
Gave labour as a doom;
No!—'tis the richest mercy
From the cradle to the tomb.
Then let us still be doing,
Whate'er we find to do,
With a cheerful—hopeful spirit,
And free hand, strong and true.

To Preserve Crab Apples.—To one pound of crab apples, take a pound of fine sugar; the juice of a lemon and a little syrup from common apples. Dissolve the sugar in it; let it boil, and skim clear; then prick the crabs, and put them into the syrup; let them boil gently till a straw will run through them; put them into pots and cover well with syrup.

Hungarian Grass.—Much has been said in the western papers, for some time past, in relation to a new kind of grass, which has been cultivated in Iowa for a year or two past, under the name of "Hungarian grass," which proves to be the genuine German or Hungarian millet.

These are times when the advice of the sagacious Macawber "comes home to men's business and bosoms:"

"My advice, Copperfield, you know. Annual income—twenty pounds. Annual expenditure—nineteen six; result—happiness. Annual income—twenty pounds. Annual expenditure—twenty pounds, ought and six; result—misery. The blossom is blighted; the leaf is withered; the god of day goes down upon the dreary scene; and, in short, you are forever floored."

Keeping Cider Sweet.—A pint of mustard seed, put in a barrel of cider, will preserve it sweet for several months. I have drank fall cider in the month of May, which was kept sweet by this means.
J. W. L.

Postage Stamps, to stick well, should be wet on their face, *after they are applied*—this effectually prevents the corners from curling up.

There is a limit to employment, though the source of wealth be boundless, and the choicest pleasure of life lie within the ring of moderation.

The N. Y. Evening Post comes out strongly, we might say eloquently, in behalf of the use of horse meat as an article of food.

The people of the United States, numbering only 25,000,000 of people, consumed more cigars than the one hundred millions of people in England, France, and Russia—a fair indication of our expensive habits.

A Cure for the Tooth-Ache.—Steep a piece of the coarsest brown paper in cold vinegar, then grate ginger on it, and apply it to the side of the face affected. The application to be made at bed time, and if necessary, to be repeated two or three nights.

Cheap Corn.—South of Springfield, Ill., on the railroads, some of the farmers are offering corn at 15 cents per bushel in the field; others at $5 per acre.

Talk much with any man of vigorous mind, and we acquire very fast the habit of looking at things in the same light, and on each occurrence we anticipate his thought.

A wife full of truth, innocence and love, is the prettiest flower that a man can wear next to his heart.

The greatest misery of any misfortune is inability to bear it patiently.

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